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DIESEL RAILWAY TRACTION

The July issue of this RAILWAY GAZETTE *publication, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 2*s.*

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THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1

As We Were

THE decision of the delegate conference of the National Union of Railwaymen by 71 votes to 8 to call on all members to work strictly to rule from midnight on Sunday next, unless their wage demands are met, brings the railway wage negotiations back to their starting point. At the end of last week, the Railway Executive made a further offer of small increases ranging up to 3s. a week for the lower-paid workers. This contrasts with the N.U.R. demand for a flat rate advance of 10s. a week for all workers, *plus* extra overtime rates. Three unions are parties to the present wage talks, and a meeting had been arranged between the Railway Executive and these unions for yesterday (Thursday). The N.U.R. Executive, however, after its delegate conference on Tuesday, announced its rejection of the wage offer and its decision to call on members to work to rule. It was made known also that the resolution carried by the conference required the General Secretary to inform the Minister of Labour of the decision. The constant attempts of the union to involve the Government in its dispute with the Railway Executive, so far have had little success. The decision taken unilaterally, and without consultation with, or consideration for the views of, the other unions, to impose its own form of duress on the Railway Executive, the Government, and the Nation, may have serious repercussions. It does not follow that members of the other unions will work to rule because of the N.U.R. decision, but the varied membership of the N.U.R. is sufficient to ensure that carrying out the threat by its members would bring chaos to the operation of British Railways.

* * * *

The Coal Board's Second Year

In their second year under public ownership, British coal mines earned a small surplus, £1,651,965, which compares with a deficit of £23,255,586 incurred in 1947. The Coal Board, therefore, has entered the present year with an adverse balance of £21,817,123. The Board's report* for 1948 runs to three hundred pages. It is clear from it that the industry would not have paid its way last year but for the extra proceeds obtained from coal exported at prices above those charged to inland consumers. The main theme of the report is the need to bring down present high costs of production. The average cost of producing a ton of coal last year was 45s. 7d., which was 4s. 4d. more than the average in 1947. The rise in cost was caused mainly by improvements in wages, which represented an increase of 2s. 9d. a ton. The cost of materials and power rose by 1s. a ton. The report gives a warning that the sellers' market for British exports of all kinds is changing into a buyers' market, and that it may be impossible indefinitely to get 1948 prices for coal exports. The price of coal used in the manufacture of many British goods may also affect adversely our competitive position in world markets.

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Accidents on Railways, 1948

Elsewhere we give a summary of the report for 1948 of the Chief Inspecting Officer of Railways, Lt.-Colonel Sir Alan Mount, on accidents on the British railways. We shall deal at greater length with the report in a later issue, but it is pertinent to comment on one or two features of it. It covers the first year of nationalisation, and it is also the twenty-first report issued by Sir Alan Mount; it is also the last he will prepare in his capacity as Chief Inspecting Officer, for, as we have already recorded, he is retiring from the Ministry of Transport on July 31, and has accepted the appointment of Consultant to the Railway Executive on matters concerned with safety measures. A feature of British legislation on railway safety has been its attempt to secure effective results with the least interference in technical matters. In this it has been successful, and is in contrast with the elaborate methods adopted in some other countries, where even the details of design of equipment are dealt with under Ministerial authority. Appropriately, Sir Alan Mount has included in the present report a section on regulatory procedure of interest in this connection. The report also points out that the Minister of Transport's

* National Coal Board Report & Accounts for 1948. H.M. Stationery Office. Price 6s. 6d.

jurisdiction on the matters under review is not altered by nationalisation. He is not responsible for the construction and maintenance of rolling stock, permanent way, and so forth, and the duties, responsibilities, and independence of the Inspectorate remain unchanged.

* * * *

Shorter Trains and More of Them

The recent dispute between the Railway Executive and drivers and firemen in the North Eastern Region over the working of "lodging turns" arose because of the unwillingness of the men to remain away from home over night. The necessity for lodging away from home was occasioned by the decision of the Railway Executive to include more non-stop trains to the North in the summer timetable. As the men had declared themselves opposed to lodging turns in general they initiated token strikes on Sundays when the practice was extended. A recent series of editorial articles in our columns put some of the advantages which would accrue from the running of "shorter trains and more of them." We dealt with the position on the main line between Kings Cross and Edinburgh in the second article of the series which was published in our August 27, 1948, issue. The suggestions then made did not provide for non-stop working, and the stops suggested would have enabled train crews to have been changed and have avoided the necessity for lodging turns.

* * * *

Design in Transport

That public interest in the design of railway equipment is as alive today as ever before is shown by the British Railways' "tavern-car" controversy, to which we have alluded in recent issues. Mr. Christian Barman's study* of design in road and rail vehicles and stations, reviewed on another page, therefore is of much topical interest. Few probably will dispute Mr. Barman's theses regarding the principles of industrial design, even if tastes differ. The impression given by the many examples which he selects is that the earlier railway engineers and architects, and even the despised later Victorians, were actuated by æsthetic considerations; it is not in recent years only that the British railways have ceased to be Philistines, even if æsthetics today play a greater part than ever before. Whether the designers are far ahead of public taste, as some will say that they ought to be, is another matter. The way in which attractively designed and decorated premises, provided by the railway companies shortly before the war, have stood up to rough usage and admirably fulfilled their purpose, shows that "good design" has utilitarian value.

* * * *

Railway Students' Association Convention

The twelfth annual convention of the Railway Students' Association, London School of Economics & Political Science, which was held at Maclay Hall, University of Glasgow, between June 25 and 28, was officially opened by Sir Cyril Hurcomb, President of the Association. On Monday, June 27, the paper entitled "Planning Proposals for Glasgow, with Special Reference to Transport," which had been prepared by Mr. Robert Bruce, City Engineer, was read by Mr. John Armour, his Assistant, and a further paper on the "Development of Shipbuilding to meet Future Requirements" was delivered by Sir Alexander Murray Stephen, Alexander Stephen & Sons Limited, on June 28. The intensive programme of visits commenced with alternative inspections of Polmadie motive power depot, or Cadder marshalling yard, and continued with Alexander Stephen & Sons Limited shipbuilding yard at Linthouse, and Glasgow Central and St. Enoch Station signal cabins. Other arrangements included an all-day steamer trip down the river and Firth of Clyde to the Isle of Arran coast, and a reception by Mr. Victor D. Warren, Lord Provost of Glasgow, at the City Chambers.

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Permanent Way Institution Convention in Dublin

After an interval of more than 40 years, Dublin was chosen by the Permanent Way Institution as the venue of its summer convention, which was held from June 17 to 21. A brief report of the annual summer general meeting, held on June 17, and of the varied programme of technical and social activities of the next four days, is given elsewhere in this issue. The convention was held under the presidency of Mr. J. Taylor Thompson, M.C., M.I.C.E., Civil Engineer, North Eastern Region, British Railways. The arrangements were made by a Convention Committee of the Irish Section of the Institution, and the success of the convention was due, in no small measure, to the care with which every detail had been planned. The continued progress of the Institution was evident from the report furnished by the Hon. Secretary, Mr. H. Janes, to the general meeting, which revealed that, during the past six months, 337 new members have been enrolled, and two sections in Great Britain have been revived. Overseas activities include the establishment of a new section in Western Pakistan. It is hoped to establish a section in Eastern Pakistan, and to revive the Malayan Section next year.

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The Metropolitan-Vickers Jubilee

The jubilee of the Metropolitan-Vickers Electrical Co. Ltd., some notes on the recent celebration of which are given elsewhere in this issue, commemorates the growth of the company into one of the greatest electrical manufacturing enterprises in the world. Founded by vigorous optimists whose faith was justified after some early struggles, Metropolitan-Vickers has always been a pioneer, whether in research and technical development, as exemplified by its prominence today in the development of radar and the gas turbine, or in the introduction of comprehensive educational schemes for its workers. That it should have existed for 50 years without an important industrial dispute or work stoppage says much for men and management and for the wise policy which has made it one of the happiest of large organisations in its industrial relations. Long experience in dealing with men and Governments in all parts of the world has made the firm an international institution, and a storehouse of ripe commercial knowledge of foreign countries. After 50 years of vigorous and healthy growth the future of Metrovick seems as bright as ever.

* * * *

New Vessel for Folkestone-Boulogne Route

Speaking at the inaugural luncheon of the new vessel *Maid of Orleans*, on June 22, Sir Eustace Missenden, Chairman of the Railway Executive, said that, despite high prices, British railways had built ten cross-Channel ships and four for coastal waters, since the end of the war. Another two cross-Channel ships and one Isle of Wight ship were building, and plans were complete for a new ship for the Southampton cross-Channel services, and were being prepared for a large motorcar carrier for the short sea routes. The *Maid of Orleans*, which is the latest addition to the fleet of 130 ships controlled and managed by the Railway Executive, went into service on the Folkestone-Boulogne route on June 23 and is described and illustrated elsewhere in this issue. The new vessel has a smart appearance, with raked stem, modern stern, one short streamline funnel, and two masts, and has been designed with all the special features required for short sea routes. Passenger sleeping accommodation is not required and though most of the available space has been devoted to large well-lighted public rooms, there is also a spacious boat deck available for passengers who wish to enjoy the sea air.

* * * *

New Double-Deck Coaches for New York

The electrified New York suburban service of the Long Island Railroad provides one of the comparatively few examples of the successful application of modern two-level coaches. So-called double-deck vehicles were built in 1932 at the Altoona Shops of the Pennsylvania Railroad (of which the Long Island Railroad is an independently-operated subsidiary) and these vehicles, which we illustrated in our issue of March 4, appear to have achieved sufficient success to justify a substantial addition to the stock. No fewer than fifty new double-deck coaches of improved design were ordered, and delivery began in the autumn of last year. Some of these are illustrated on page 18 of this issue. The vehicles are 70-ft. long, and each

* The Things We See—Public Transport. By Christian Barman. (Penguin Books)

coach seats 132 persons, against an average of 72 in the standard coaches. The new vehicles are built entirely of aluminium, and, in addition to such improvements as deeper and more comfortable upholstered seats, have recessed lighting, air conditioning, and improved springing. There is also a public address system in every coach, enabling the trainman in the vestibule to make station announcements and to disseminate other information of importance to passengers. As with the earlier Long Island vehicles, these are not true double-deckers, but are coaches in which the passengers are seated on two levels, to which they step up or down from a centre corridor.

* * * *

Renewal and Strengthening of Weak Bridge Spans

The principal point established in the reports discussed at the enlarged meeting of the Permanent Commission of the International Railway Congress Association, which are summarised in this issue, seems to be that, due to increased loadings and/or deterioration with age, bridge spans have sooner or later to be checked to ascertain whether they are suitable to remain in service. These checks are almost invariably made by theoretical calculation in the first instance, but are often confirmed by practical measurement of deformation under load if the calculations show them to be nearing the safe limit. Measurement, generally, shows that calculation errs on the safe side. In all countries regulations are in force which specify appropriate loadings for various classes of line and bases for impact assessment. The most common treatment for a weak bridge span is to replace it with a new one of greater strength, but alternatives are to strengthen it *in situ* or replace it by a suitable span released from elsewhere. There is a great variety of methods of replacement and of strengthening, and, in some instances, the building of intermediate piers is favoured so as to give existing spans a new lease of life. The choice of treatment of a weak span depends mainly on financial, traffic, and geographical considerations, and on the availability of materials.

* * * *

Another British Main-Line Diesel

In our issue of June 10, we commented on the successful non-stop run of the London Midland Region diesel-electric locomotive from Euston to Glasgow on June 1, hinting at the same time that further diesel rail traction experiments might be expected on British Railways in the near future. This week the Railway Executive has announced that there is under construction at Derby a 4-8-4 locomotive in which power from four diesel engines of 500 h.p. each is transmitted mechanically to the driving wheels instead of being transmitted electrically as in the majority of existing main-line diesels. This new unit, some preliminary details of which are given elsewhere in this issue, will have a maximum speed of 84 m.p.h., and can be driven from either end. Because of the comparatively light load on the axles, the locomotive will be able to run over most main-line routes, and will be readily adapted for a wide range of duties from heavy goods to express passenger service. The locomotive, which has been numbered 10100 and is expected to be ready for trials early next year, is being built to the design of Mr. H. G. Ivatt, Chief Mechanical Engineer, L.M.R., who was also responsible for the design of diesel units 10000 and 10001. Mr. Ivatt is collaborating with Fell Developments Limited and Ricardo & Company. The transmission system and various ancillary features have been patented by Lt.-Colonel L. F. R. Fell.

* * * *

True Colours

Personal reactions to how faces and foodstuffs appear under fluorescent lighting are taken seriously enough to be made a subject of research by at least one manufacturer. Visitors to the conversazione held last week at the G.E.C. Research Laboratories at Wembley and reported elsewhere in this issue were shown a sample meal arranged to be illuminated by fluorescent lamps of different colours in turn, with a mirror alongside in which subjects of the experiment could view their complexions in similar circumstances, subsequently assessing the effect on appetite of what they had seen. The matter is of some importance to railways at the present time, as fluorescent lighting is being used widely on their premises and to a growing extent in their vehicles. There are some Southern Region restaurant cars in which first-class passengers are said to be seen under the fluorescent lamps with an aristocratic pallor suggesting a life of ease on unearned income, while patrons of the third class are endowed by the ordinary tungsten lighting with the relatively ruddy complexions appropriate to the sons of toil. Differences are emphasised when the two forms of lighting are seen in proximity. Such conditions are likely to be found in trains for some time to come, and the search for an acceptable compromise will be watched with interest.

* * * *

British Railways Costs

PERHAPS the Minister of Transport was ill advised in choosing to address the May conference of the Railway Clerks' Association. Being unable to show any favourable results from railway nationalisation, Mr. Barnes tried to comfort his audience by suggesting that the pooling of all the British Transport Commission's receipts would bring about a bright new world, in which workers would enjoy "a standard of life comparable to any other section of our economic system." This statement led to a lengthy correspondence in *The Times*. On June 6 Mr. Gilbert J. Ponsonby, University of London, put forward the reasonable proposition that "each form of transport should cover its full social and economic costs, including interest upon capital." Ten days later, Mr. Gilbert Walker, Birmingham University, wrote agreeing in principle, but objecting to interest on Transport Stock, issued to the former proprietors, being counted among British Railways costs. Mr. Walker asserted that "four or five years of free (but fair!) competition between rail and road, and the four main-line companies would have fallen into the Minister's hands for next to nothing."

So far from competition being fair, road hauliers could pick their traffic and charge what they pleased, while the railways had to accept all goods tendered to them and were subject to strict regulation of rates. But, even with that handicap, how can Mr. Walker be sure that the railways would have become totally bankrupt? Does he seriously suggest that the Southern Railway, for example, would have had no value in 1952 if it had been left free to carry on? Its 1938 results gave no sign of impending bankruptcy. With a total capital expenditure of £173,600,000, the Southern had a net revenue of £5,942,000—a return of 3.4 per cent. The chief component parts are tabulated below:—

	Capital £	Net receipts £	Rate of return Per cent.
Railways	147,730,000	4,276,000	2·8
Docks	14,032,000	337,000	2·4
Land and property ...	5,500,000	470,000	8·5
Steamships and marine ...	2,815,100	398,000	14·0
Hotels	1,348,000	28,200	2·0

As these figures indicate, the Southern Railway, in a year of trade depression, did remarkably well. It managed to display an unusual degree of vitality under the deadening hand of Government control and we can see no justification for making over its property as a gift to the British Transport Commission, and leaving the taxpayers to bear the interest on the compensation paid to the proprietors.

On June 24 Mr. Ponsonby replied in a long letter, which endeavoured to show that "interest earned on railway capital consists of three quite distinct elements, two of which do represent very real costs to the community and should be so regarded, the third being no more than a legal commitment to produce a sum of money, representing no call on or use of the country's scarce resources, and therefore in no sense a social or economic cost."

These somewhat academic phrases mean that, as a portion of their operating expenses, the railways must provide for the maintenance of rolling stock and of way and works, in so far as these are wasting assets, but need not be troubled to find interest on capital spent on land or on the construction of tubes, tunnels, cuttings and embankments, which Mr. Ponsonby thinks are durable assets and "with a modicum of maintenance" are there for all time. Railway engineers are not likely to support this theory, for many of these works are a constant source of expense. Before the war, the railways spent from £2,000,000 to £2,500,000 a year in maintaining works of that description, including bridges, and present-day costs may be twice as great.

The correspondence in *The Times* has been both lengthy and academic, but none of the writers has come down to the

basic point. This is that there can be no getting away from the fact that the State has purchased the railway undertakings, and has issued interest-bearing stock in settlement of the deal. Therefore, it is an obligation on the part of the State to meet the interest on the securities. That costs about £36¼ million a year, and is a prior charge on the British Transport Commission.

There is a tendency to refer to railway capital as though it were a useless burden inherited from a distant past. In fact, it has grown gradually through expenditures for additions and betterments. If the main-line companies had not increased their capital expenditure by £82,000,000 between 1923 and 1938, they could not have met the strain of the war and earned £176,000,000 for the Treasury during the four years 1941 to 1944, through the intensive use of their property. It has also to be borne in mind that the railway companies got far more in the shape of physical assets for their money than British Railways can obtain. The Railway Executive will be aware of this difference in conditions when it comes to consider estimates for new works such as the tunnel which is being bored at Woodhead, on the Manchester and Sheffield line.

The Commission and the Railway Executive are indeed fortunate to have taken over many structures and well-equipped establishments, such as engineering workshops, which are indispensable for carrying on railway operations and could not be replaced today, save at fantastic prices. On the other hand, these bodies are saddled with the upkeep of lines like the old Highland Railway, which cannot pay their way, though the Government may regard their preservation as essential for strategic or political reasons. British Railways might be relieved from responsibility for the loss on running these parts of its undertaking. With that exception, we do not see any ground for interfering with the established system of railway accounting.

The correspondence may have served a useful purpose by drawing attention to the fundamental importance of capital. The success of large transport undertakings depends partly on judicious capital expenditure, calculated to improve net revenue either by increasing turnover or reducing working costs. In 1948 the U.S.A. railways spent $1,273 million on improvements. About 72 per cent. of that amount purchased locomotives (mostly diesels), wagons and carriages; most of the money was raised by selling equipment trust certificates to the highest bidder. The remaining 28 per cent. was expended on roadway and structures; to meet these costs the railways cannot rely, as a general rule, on capital investment, but either plough back earnings or draw on cash reserves accumulated during the prosperous war years. Neither method of financing schemes of betterment can go on indefinitely and works programmes may be curtailed during the current recession of business. Similarly the uncertain outlook for our own trade and industry may cause British Railways to restrict capital expenditure during the second half of 1949 to the completion of schemes which are already well advanced.

* * * *

A Philosophy of Transport

TOWARDS the end of last week Mr. Raymond W. Birch presented a paper with the title "A Philosophy of Transport" at the Institute of Transport Congress at Buxton. He declared that the world was suffering from a bad overdose of State-ideology—the idea that the State should interfere in, and run, everybody's life and business for the benefit of everybody else. It was this threat to the persons engaged in transport and those using it that Mr. Birch took as his subject. He pointed out that the essence of philosophy was the spirit of enquiry, a desire for truth and a rejection of prejudice. Through philosophy one might attain greater serenity of mind, satisfaction, and indeed happiness. But how could that serenity be attained when the State ideologists did their utmost to tear up by the roots those deeply grounded loyalties which all good workmen felt towards the undertakings they served? The ideological policy of nationalisation was not positive but negative. It sprang, not from a desire to run the industry in the best way, but from a mania to sieze possession of it from the persons already running it.

Mr. Birch went on to discuss the position which had arisen because the workmen had been encouraged to believe that nationalisation would give them control of their industry. Many of them now felt that they had been cheated. A "gallup poll" by the *Railway Review* showed nearly fifty per cent. of the railway as feeling more frustrated than under private enterprise. Only a very small proportion said that they felt better. There was little doubt, according to Mr. Birch, that if the poll had been conducted among administrative workers in the higher grades the proportion confessing frustration would have been much higher.

The agitation for greater representation by the workers on the government bodies of the socialised railways and other industries, and the misguided attack by certain trade unionists on the railway apprentice system were characterised by Mr. Birch as the symptom of old-fashioned envy largely due to lack of appreciation or experience of the managerial function. It is a part of the same school of thought as that which is responsible for reducing incentive to train for administrative posts by overtaxation of the professional classes and the limitation of scales of salary. It will be recalled that there was a resolution at the Co-operative Congress that no salary in a national undertaking should be higher than in the Co-operative movement.

* * * *

Central African Transport Problems

AT the invitation of the Portuguese Government, delegations from the Governments of Belgium, France, Portugal, the Union of South Africa and the United Kingdom, met at a Transport Conference held in Lisbon from May 24 until June 1. The United Kingdom delegation was led by the British Ambassador to Portugal, Sir Nigel Ronald, K.C.M.G., C.V.O., and the delegates included representatives from the Foreign Office, the Colonial Office, the Office of the High Commissioner for Southern Rhodesia, and the Commissioner for Transport, East Africa (Sir Reginald Robins). The Conference was presided over by Dr. Ulrich, former Portuguese Ambassador in London.

The objects of the Conference were fourfold:—

(*a*) To examine the present conditions of land and water transport in the area within the scope of the Conference, comprising Angola, Basutoland, Bechuanaland Protectorate, Belgian Congo, British East Africa, French Equatorial Africa, Mozambique, Northern Rhodesia, Nyasaland, Southern Rhodesia, South West Africa, Swaziland, and the Union of South Africa.

(*b*) To exchange information on the plans of the various territories concerned in relation to railway and port construction, development of inland waterways and extension of trunk roads serving inter-territorial functions.

(*c*) To examine the possibility of inter-relating these plans in the best interests of the territories concerned as a whole.

(*d*) To draft an agenda for a full-scale conference of Governments with technical assistance to be held in Africa at a later date; to fix an approximate date for such a Conference and to decide its venue.

In addition to the official delegations from the Metropolitan countries, the United States of America sent three special observers.

The Conference, which covered all forms of transport except air, recommended to the Governments represented at the Conference that the Governments should co-operate in the development of Central African port and transport facilities on a regional basis, and work together to that end. To carry out this policy of co-operation, it was proposed that a Plenary Conference should be convened in Johannesburg in July, 1950. To that Conference it was suggested that the following Governments and Administrations not directly represented at the Lisbon Conference should be invited: Southern Rhodesia, East Africa High Commission, High Commission Territories in South Africa, Northern Rhodesia, Nyasaland, Government General of Angola, Government General of Mozambique, the Administration of the Belgian Congo and the Administration of French Equatorial Africa, and also that the United States of America, be invited to send an observer or observers.

An interim organisation was suggested as soon as possible at Pretoria to deal with matters arising before the Plenary Conference, and to ensure that when that Conference meets it shall have before it all pertinent data.

The Governments concerned, between now and the Plenary Conference to be convened in Johannesburg, are to examine

their railway rating systems with a view to establishing whether the development of the territories served is being retarded or likely to be retarded by the railway tariff structure in operation. Each Government is also to proceed, it was agreed, without awaiting the Plenary Conference to be convened in Johannesburg, with developments which will promote Central African interterritorial and international port and transport facilities and operations.

These proposals have now been submitted to the Governments represented at the Conference and await the approval of those Governments. If the proposals are agreed, immediate steps will be taken to set up an interim organisation in Pretoria to deal with the matters referred to in the conclusions of the Conference. It will be noted, in connection with the interim organisation, that should it appear to the Secretary that a decision requires to be taken on an important matter before the Johannesburg Conference meets, the Secretary can, with the consent of the Government and Administration concerned, convene a meeting of suitable experts to be appointed by the Governments and Administrations to advise on that particular question.

The question regarding a permanent organisation is one of the most important matters which will be dealt with at the Conference, which is to be held in July, 1950, in Johannesburg.

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Locomotive Interchange Trials

DURING 1948 the Railway Executive sponsored a series of intensive locomotive interchange trials between the various Regions of British Railways with a view to trying out representative locomotive types of the former railway companies with standard loads. As far as possible, identical conditions were selected, both over the routes on which the locomotives were designed primarily to work and on other routes in various parts of the country. These trials aroused a good deal of interest, and a report has now been compiled on them. It is not intended to make copies available to the public because of the cost of large-scale production. It consists very largely of tabular matter, descriptions of the test arrangements, loads, coal and water consumption, and so forth.

On their formation in 1948, British Railways inherited four series of modern locomotive types, one from each of the former main-line companies. Although each of these series was highly standardised within a single company, hardly any features or details were common from one company to another. In pursuance of its general policy of engineering standardisation, the Railway Executive decided that it would not continue to build four varieties of locomotives for each traffic duty. It proposed a single series of about 12 standard types, each of which would contain the best features of existing designs, and which could have added to them improvements and developments as experience and the ingenuity of the design staffs should indicate.

Of the various methods of locomotive testing, that which gives the quickest general survey of passenger and economy is the dynamometer car, which measures draw-bar pull, speed, and horsepower. The indications so given, related to the coal and water consumed, are a fair measure of the overall efficiency of the locomotive.

Fourteen types of locomotives were tried on selected routes on each of five Regions, ranging as far north as Inverness and as far west as Plymouth. The test covered the period from April to December, 1948, and the results fill 131 pages of the report. The tests were not intended to be a contest between locomotives of similar types, which it was appreciated had been designed, for the most part, to fulfil the requirements of their particular Regions. The results, therefore, do not disclose any dramatic or unexpected features, nor is it possible to declare that one type of locomotive is "the best."

From the outset it was realised that these indications would be of a very broad kind, as the trials were carried out under the normal operating conditions obtaining at the time of each test run and without any special preparation of the locomotives. It was agreed that the locomotives used should be taken direct from traffic, having run between 15,000 and 20,000 miles since last general repair and there was consequently some variation in mechanical condition, particularly in the case of freight locomotives. It was also realised that, in the existing circumstances, inequalities which are liable to be experienced in any variable speed testing on the track would be present. Traffic delays and temporary speed restrictions may be mentioned as examples of these inequalities and, whilst the traffic delays tended to cancel out over a number of tests, the number and siting of temporary speed restrictions affected some locomotives more than others. It was appreciated, however, that further testing would subsequently have to be undertaken on the Rugby and Swindon testing plants and with the mobile testing plant when such limitations would not apply.

The Western Region locomotives had grate and smokebox arrangements specifically designed to suit Welsh coal, and these, together with the firing technique to which the Western Region enginemen had been trained, differed from what is customary with the types of coal used on the trials. In view of these conditions it was arranged that, on completion of the trials, additional tests should be carried out on the Western Region using Welsh coal.

The use which the Railway Executive will make of the mass of data which has been accumulated can be summarised under two main headings:—

(1) Since all the locomotives demonstrated their ability to operate the selected trains to the booked timings when operating on "foreign" routes differing widely in character from the "home" routes, the Railway Executive is satisfied that no limit need be placed on its proposals for standardisation by reason of suitability of particular locomotives for the routes over which they will have to work.

(2) The tests have indicated many features of design worthy of consideration for the new standard types, and the drawing offices are now examining closely their possible application. Examples are:—

(*a*) Use of the largest boilers which weight limits will allow to give ample reserve of power for all circumstances.

(*b*) Use of wide fireboxes in the larger engines for highest combustion efficiency.

(*c*) Firebox and ashpan arrangement to give best results with varying qualities of coal.

(*d*) Adoption of design features to promote good riding and minimum wear and tear on the track.

The conclusions which have been reached as a result of the trials show that for comparable conditions and duties locomotives with wide fireboxes had a higher overall efficiency than those with narrow fireboxes, but the effect of differences in other design features reversed this in some cases. The importance of correct firing technique in relation to the type of coal used, and the necessity for adjusting details of design, such as spacing of fire bars, to suit the type of coal used, were especially evident in connection with the higher power outputs. There was a clear indication, too, of the advantages of high boiler output and large thermal capacity to give a reserve of power and margin for rapid recovery without an appreciable decrease in overall efficiency.

Steam temperatures were not recorded, but there were indications that an increase in the degree of superheat effected an improvement in efficiency in the case of express passenger and mixed-traffic locomotives. In the case of freight locomotives the improvement was much less marked. The performances of the different locomotives with regard to slipping were variable, and it is recognised that further investigation is desirable. In view of the irregular draw-bar pulls recorded in certain cases it is considered that further investigation should be made into the effect of balancing, valve setting, and other relevant factors on the smoothness of draw-bar pull. The express passenger and mixed-traffic locomotives with the smaller diameter coupled wheels experienced no difficulty in attaining the speeds necessary to maintain schedules, and on all routes it was noted that the average power required from the locomotives was low in relation to maximum power required.

Whereas individual tests of this kind have been carried out from time to time by all the former companies, this is the first occasion on which so comprehensive a series has been run. It has given the Railway Executive the opportunity of basing its locomotive design policy on known and recorded facts. It must be appreciated, however, that the tests outlined cover only operating and performance features. These have to be supplemented for each locomotive by data on building and repair costs and on availability in daily service.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Regional Timetables

Basildon Park,
Berks. June 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Might I bring to your notice one interesting feature not referred to in your review, in the June 10 issue of *The Railway Gazette*, of the Summer train services and the six Regional timetables?

Tables for trains on the Fenchurch Street, Tilbury, and Shoeburyness lines are no longer mentioned in the London Midland book, but are transferred to that of the Eastern Region. Rather confusing for the travelling public who may be unaware of the change of "ownership."

Yours faithfully,
MAXWELL TAYLOR

Railwaymen's Unpaid Pensions

P.O. Box 546,
Haifa, Israel. June 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—But for your correspondent's, Mr. H. W. Holt's, letter in your May 20 issue, to my shame, I might not have recalled your victorious leadership of the old ineligibles in the War Bonus campaign. Truly the good is oft interred with the back volumes.

Were I to sound "the charge" in another grim battle, would it be heard yet once again in far-off Tothill Street, I wonder?

Chelsea is still playing the game with its pensioners; the retired army officers and the Civil Servants, the home ones, can now pull up the ladder; the *ex*-Argentines at least get their 250 pesos; and the pre-1941 home railwaymen may still manage one more hole in their belts: but not so "the lost legion," the veteran expatriates of the old Palestine Railways, put on pension many years ago, who still reside here. A fine body of men, though I say it myself—one rank throughout, that of lance-pensioner, unpaid; spare as Spartans, from a life unpampered with guerdons since March, 1948; international, and airborne, too, for they have to live on it, and like it.

Not that there was any lack of planning, and staff was laid on up to modern standards. They had merely to go to a consular post (or write, rather, as the notice said "no callers") where they were given an address in distant Cyprus to which to write again. That remote establishment got so many letters and telegrams—the Consulate had said, telegram is best—that it really could not answer them all, and after about nine months, though Cyprus is delightful, it simply had to move still farther out of reach in March last. It was very decent about it, and left an address in London which would find it; only there would be no possibility of coping with reminders until well after Ascot. A pessimist felt it might be a little idea of Sir Stafford's, but had I thought so, you might only have caught the notes of "the last post."

How splendid if you could be persuaded to take down the old sword and buckler! In wistful fancy I can see the famous banner, emblazoned "Paid wherever there are Railways," flaunting in the breeze.

Yours faithfully,
A. L. JONES

Hastings and Bexhill Services

May 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I would like to voice the intense disappointment felt by many of the hundreds of season-ticket holders in the Hastings-Bexhill area that the new Southern Region summer timetables offer not even a token improvement in the facilities provided.

The anxiety of the Railway Executive to attract casual traffic during slack hours is understandable and economically sound. One cannot help feeling, however, that the preferential treatment offered to day and week-end excursionists in the matter of fast trains, might equally have been offered to the daily traveller, whose regular outlay on season tickets represents a very important and unvarying source of revenue for the railway.

The Southern Region apparently finds it possible to run trains such as the 6.14 p.m. and 7.15 p.m. from Bexhill Central direct to Victoria on Sundays, but the daily week-day traveller still has to face the arduous and unnecessary journey into Eastbourne at both ends of the day. This, added to an unreliable steam connection at East Croydon, makes a 61-mile journey take as much as two hours if he happens to want to travel to Victoria. (Incidentally, the practice of running all "business trains" into London Bridge is presumably a relic of the days when everyone worked "in the City.")

I imagine a feasible argument could be made out that on high days and holidays the train from Hastings will be too packed to warrant the extra mileage into Eastbourne. On the other hand, I can assure anyone who is interested that, in the summer, the same conditions apply to most of the early morning trains, as Eastbourne residents will no doubt confirm.

Perhaps it is all a matter of lack of rolling stock, or lack of crews, but some of us feel that it is lack of interest in the residents of Hastings and Bexhill, who seem to be regarded by the Southern Region—both as regards timetables and rolling stock—as the "poor relations" of the more fortunate beings who live in Brighton, Hove, Bognor, or Worthing.

There is, of course, an alternative route to Town from both Hastings and Bexhill. It is the steam service *via* Tunbridge Wells, a leisurely affair with obsolete stock and a healthy disregard for this age of split-second timing.

Yours faithfully,
WILLIAM THE CONQUERED

Nationalisation and Standardisation

The Old Manor,
Salisbury, Wilts. June 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—From Mr. R. H. W. Bruce's letter in your issue of May 27, the discussion, argument, and experiment on the form, type, and shape of rails would seem to indicate that there was quite a lot to be said for all of them, each authority backing its own fancy.

Since nationalisation, a single standard has been adopted, economy being achieved on the larger quantities required. If all discussion and experiment were to cease, it would be a sorry outlook for the country as a whole and the railways in particular.

However, the Post Office have had a monopoly of the phone business in general for some years now, and manage to run a research department of no mean repute, so it is to be hoped that the lead will be followed. Whatever one's private opinions on the matter may be, there is no gainsaying that the railways were not in the best condition after the war, and that any body, private or public, would have a by no means enviable job getting them back into a decent condition again.

Yours faithfully,
COURTENAY BARRY

Summer Train Services

6, Oak Villas, Manningham Lane,
Bradford. June 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It was interesting to read your comments on the summer train service alterations in your June 10 issue, and especially those pertaining to the revised working on the former Great Northern and Great Central sections of the Eastern Region.

The Yorkshire services from Kings Cross have been materially improved by the new "West Riding" and "White Rose" workings, and in the down direction, particularly, give a good, evenly spaced out service throughout the day, which has been further improved by the later evening departure from London of the "Yorkshire Pullman." In the reverse direction, however, after an excellent early morning service from Bradford and Leeds to London, there is no really fast service, with the exception of the up "Queen of Scots" and the Mondays, Fridays, and Saturdays 12.30 p.m. from Leeds to Kings Cross. In particular, one would have hoped for some improvement of the leisurely late evening 5.15 p.m. from Leeds to Kings Cross, on the lines of the down "White Rose" and "West Riding" workings; or, alternatively, a fast service leaving Leeds at about 6.15, running non-stop from Doncaster to Kings Cross, following the 1.25 p.m. from Edinburgh. Such a working would give a good fast evening service from Bradford, Leeds, and, possibly, Hull, to London.

It does seem rather ironical that the elevation of the 5.15 p.m. *ex*-Leeds to named-train status should be coincident with its public arrival time at Kings Cross being made five minutes later, quite apart from its dubious claim to be a "New Restaurant Car Express," to quote the official handbill designation. However, it is to be hoped that the Eastern Region authorities may be able to make some improvement in this late evening service, to complete the valuable improvements already made.

Turning to the Great Central section, it is pleasing to note

the excision of the Chesterfield stop from the down "South Yorkshireman," in view of the closely parallel service given by the 4.50 p.m. from St. Pancras. At the same time, it does seem regrettable that certain of the cross-country trains and the intermediate express services from Marylebone to Manchester cannot be routed to call at this important Midlands centre, in view of the attention given to Rugby and Loughborough, which are places of similar size, let alone those favoured spots, Woodford and Brackley. The 12.15 p.m. from Marylebone, with its easy schedule north of Nottingham, would appear to be a suitable train to be diverted *via* Chesterfield, which would at least balance the call made there by the 3.50 p.m. *ex*-Manchester.

The cancellation of the 2.20 p.m. from Manchester to Marylebone, and its replacement by the new 11.30 a.m., seem to be an alteration of questionable value, especially its running from Sheffield to Marylebone little over an hour behind the "South Yorkshireman," although the altered Liverpool to Harwich boat train leaving Manchester Central at 2.15 p.m. maintains the Manchester-Sheffield service at this time. One wonders whether the altered Manchester-Marylebone working is caused by the desire to abolish the unbalanced workings by the Leicester shed crews who work the majority of these trains between Leicester and London, as, in the previous timetable, the enginemen working the down "South Yorkshireman" between London and Leicester travelled in the up train from Leicester to London, and the crew working the 2.20 p.m. from Manchester between Leicester and London had to return as passengers by the down Night Mail.

Whilst the late 2.20 p.m. from Manchester, with its closely parallel running with the Midland route 3.42 p.m. from Sheffield to St. Pancras, was hardly the best patronised train between Sheffield and Marylebone, one feels it probably had a better traffic appeal than the new 11.30 a.m. from Manchester can anticipate on a day-to-day basis. One would have imagined that the re-timed train would have given a reasonable connection at Aylesbury to Wycombe, which in the up direction has no through service to balance that given by the 12.15 p.m. from Marylebone, and what connections are given off the Aylesbury line trains, if they can be so called, may fairly be described as atrocious in the up direction. Before the war, both the 10.0 a.m. Bradford and 12.15 p.m. Manchester expresses called at Wycombe, and in the reverse direction the morning Mansfield-Marylebone buffet car train and the 5 p.m. from Bradford, the recollection of which makes the present service seem all the more parlous.

One unfortunate result of the cancellation of the 2.20 p.m. from Manchester to Marylebone is the severence of the very useful connection given at Penistone from Huddersfield and Halifax by the 1.35 p.m. from Bradford, which provided a feeder to the Manchester train; in fact, at holiday times, I have seen over 200 persons change from it to the express at Penistone. A similar case occurred when the afternoon Liverpool-Hull train was accelerated, when the connection formerly given by the 6.10 p.m. from Huddersfield to Penistone was severed by the slightly earlier running of the Hull train.

If the cancellation of the 2.20 p.m. Manchester-Marylebone train is to be permanent, surely a better connection from Huddersfield can be given with the 3.50 p.m. from Manchester to Marylebone than the modest 96-minute wait at Penistone off the 1.35 p.m. from Bradford, as there is no other reasonable connection from Huddersfield to Sheffield, Nottingham, and Leicester in the late afternoon, and the London connections to Euston and Kings Cross involve a 44-minute wait at Stockport in the first instance, and the dubious joys of a double change at Brighouse and Wakefield in the second.

It does seem surprising that more use is not made of the Huddersfield and Penistone line to give through services to the Midlands and South. One wonders, also, whether the best use is made of the sole through working—the "South Yorkshireman"—which in the down direction makes a rapid transition at Sheffield from its fast running from London to something more leisurely thence to Bradford, taking 95 minutes for 41½ miles, averaging a gay 26 m.p.h. over this section. Making all allowance for the severe gradients and regular and conditional stops, surely something better than this is possible? There seem to be distinct possibilities for improvement of this service. Surely it would be a better idea to divert the train *via* Halifax, giving a much needed service from that town, which could be done without any increase in journey time between Huddersfield and Bradford.

One wonders, too, whether the up train could not be timed to leave Bradford at 8 a.m., preceding from Sheffield the 8.25 a.m. from Manchester to Marylebone. This would enable the Loughborough and Rugby stops to be excised, connections being given by the following train, and an arrival in London at about 12.45 p.m. would give business men a full afternoon for work in London. Earlier running of the "South Yorkshireman" between Sheffield and Marylebone would also give more point to the running of the new 11.30 a.m. from Manchester to Marylebone.

One further point concerning the working of the "South Yorkshireman" which causes considerable annoyance to travellers when the train is crowded, is the reduction in seating capacity between Sheffield and Bradford caused by the detaching of the three-coach Sheffield portion of the train. At busy times the train is usually full to capacity between Sheffield and Huddersfield, although there is generally plenty of accommodation beyond Huddersfield, and similarly in the reverse direction.

I believe that, apart from the 1 in 50 gradient out of Bradford, the main objection to running a longer formation between Bradford and Sheffield is the limited platform length available on the L.M.R. side at Bradford Exchange. In view of this, and of the fact that present accommodation usually proves ample between Bradford and Huddersfield, perhaps the suggestion of strengthening the train to and from Huddersfield at busy times might be considered.

Yours faithfully,
GEORGE W. CARPENTER

Stalheim Tourist Hotel

70, Rowlands Avenue,
Hatch End, Middlesex. June 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The writer of the editorial article in your June 17 issue under the heading "International Union of Railways" appears to have let his imagination run riot in describing the "celebrated Stalheim tourist hotel" as "high among the glaciers near Gudvangen" in Norway.

Stalheim itself is little more than 1,000 ft. above sea level. Inland from the hotel, nothing is seen but rolling wooded hills that might be a part of the Highlands of Scotland. In the opposite direction, to the north, lies the sheer 1,000-ft. drop to the Naerodal, bordered by mountains which, although high, are completely free of snow in the summer. From this point there is not a single glacier in sight; indeed, the nearest snowfield, the Fresvikbrae, and a small one at that, is 13 or 14 miles away, and completely out of sight.

It is not until one penetrates the inner reaches of the Nordfjord, at places like Loen and Olden, or Fjaerland, at the extremity of a branch of the Sognefjord, on the fringes of the great Jostedalsbrae icefield, that it is possible to talk about being "among the glaciers."

Yours faithfully,
CECIL J. ALLEN

"Sparks as Big as Footballs"

Eritrean Railways & Ropeway,
P.O. Box 218,
Asmara, Eritrea. June 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—After five years of wood burning on the Franco-Ethiopian Railway, during the last war, I thought that I was a bit of an authority on the subject of sparks and, therefore, was specially interested to read the letter from Mr. C. W. Hancock in your Scrap Heap of May 13. However, our locomotives never quite managed to produce anything up to football size—even when travelling at a hundred miles an hour!

Even so, the pyrotechnic display, at night, was quite notable, a column of sparks shooting out of the chimneys for twenty to thirty feet into the air and then cascading over the train and the surrounding countryside. Fortunately, the lineside "bush" was not of an inflammable nature, but every native hut within about five hundred yards of the railway which caught fire, from whatever reason, was claimed to have been set alight by sparks from an engine.

Fires on trains were pretty frequent, and despite an extinguisher carried in the van, together with buckets for water and a drum of sand on the tenders, we had three coaches completely burned out, and also, numerous wagons with their contents, and many others damaged.

The "fireworks" had one advantage, in that should a sleepy stationmaster let two trains get into the same section, travelling in opposite directions, as happened on a couple of occasions, the drivers could see the plume of fire of their opponent in ample time to enable them to pull up and avoid a "regrettable incident."

Yours faithfully,
O. P. C. COLLIER,
General Manager & Chief Mechanical Engineer

The Scrap Heap

Honeymoon Special

A $1,000 "package honeymoon" will be provided for 75 newly-wed couples who will reach Montreal on July 10 from San Francisco, and join a special "Honeymoon Limited" train which will be worked by the Canadian Pacific Railway. It will visit Toronto, Niagara Falls, Winnipeg, Banff, the Rockies, and Vancouver.

The charge will cover all rail and Pullman tickets, hotels, all meals, luggage transport, sightseeing, and tips.

* * *

Some Railway Centenaries of 1949

July 4, Red Hill to Dorking (8 miles), and Reading to Farnborough (15¾ miles) opened. Reading, Guildford & Reigate Railway.

July 10, Weeton to Leeds opened (11¼ miles). Leeds & Thirsk Railway.

July 13, North Rode to Uttoxeter opened (28 miles). North Staffordshire Railway.

July 17, Woodhouse Junction to Gainsborough opened (27¾ miles). Manchester, Sheffield & Lincolnshire Railway.

July 21, Manchester (Oxford Road) to Altrincham opened (8 miles). Manchester, South Junction & Altrincham Railway.

July 21, Whitehaven to Ravenglass opened (16½ miles). Whitehaven & Furness Junction Railway.

July 27, Tweedmouth to Sprouston opened (21 miles). York, Newcastle & Berwick Railway.

July 30, Skipton to Ingleton opened (25 miles). North Western Railway.

July 30, North Kent Junction (Deptford) to Gravesend opened (21¼ miles). South Eastern Railway.

August 1, Huddersfield to Stalybridge (M.S. & L.R.) opened (18 miles). London & North Western Railway.

August 1, Saltney (Mold Junction) to Mold opened (10 miles). Chester & Holyhead Railway.

August 15, High Level Bridge, Newcastle, brought into use; formally opened by Queen Victoria September 28. York, Newcastle & Berwick Railway.

August 20, Dorking to Shalford (10½ miles), and Farnborough to Ash Junction (4¾ miles) opened. Reading, Guildford & Reigate Railway.

August 20, Ash Junction to Guildford opened (5½ miles). London & South Western Railway.

September 4, Retford to Doncaster opened (17¼ miles). Great Northern Railway.

October 1, Ash Junction to Farnham opened (4¾ miles). London & South Western Railway.

October 9, Slough to Windsor opened (3 miles). Great Western Railway.

November 1, Milton Junction to new Glasgow terminus at Buchanan Street opened (2½ miles). Caledonian Railway.

November 1, Dubton Junction to Limpet Mill opened (27¼ miles). Aberdeen Railway.

November 12, Oakengates to Wolverhampton opened (16¼ miles). Shrewsbury & Birmingham Railway.

November 12, Todmorden to Burnley (Gannow Junction) opened (9¾ miles). Lancashire & Yorkshire Railway.

December 1, Datchet to Windsor opened (1¾ miles). London & South Western Railway.

December 1, Burston to Norwich (Victoria) opened for goods only (17½ miles); for passenger traffic December 12. Eastern Union Railway.

The Personal Touch

The perfect season ticket will be adopted by New York's Long Island Railroad this autumn. On it will be the holder's photograph, name, address, height, weight, and colour of hair and eyes. And he will be required to wear it while travelling clipped to his lapel. Its purpose: To prevent more than one person using the ticket.—*C. V. R. Thompson in the "Daily Express."*

* * *

Sunday Railway Strikes

Since the outbreak of Sunday strikes began, no statement in favour of lodging turns has appeared, except their necessity as a means to giving an efficient public service. Nevertheless, I recall that before the war many footplate men regarded these turns as the "plums" of their profession, enhancing both their pay and their prestige. Protests were not unknown that such turns were kept too exclusively in the hands of a select few. The engine crews I refer to were enthusiasts, who took pride in their work and in the skill with which a long arduous duty was completed with a high margin of coal still in the tender. Are we to believe that this race of men has passed away?—*P. E. Hirst in a letter to "The Times."*

* * *

Juvenile Track Squatters

The magistrates at Coventry recently were told about children who deliberately lay down in the middle of the railway track and waited for an express to run over them. If the train driver saw them and pulled up, they ran away. The same children also altered signals and hurled things at trains.

Mr. D. E. Greenfield, telling the story while prosecuting 11 boys, aged nine to 14, for trespassing, said: "It is only a question of time before there is a serious accident. Then parents will complain about the railway not being safely fenced. The depleted railway police force, instead of tracking serious crime, have to chase the children away."—*From the "Evening Standard."*

"Oughtn't we to send our 'arrived safely' telegram now—in case anything happens?"

[Reproduced by permission of the proprietors of "Punch"

100 YEARS AGO

From The Railway Times, *June* 30, 1849

A meeting, one of many to be held hereafter, was assembled on the 22nd inst. at Leeds, at which it was resolved to petition Parliament to pass the Bill for the more easy mode of winding up Railway Companies, and the abandonment of unpromising and abortive undertakings. Mr. George Leeman has the merit of originating and urging upon the Government and the Railway Board the importance of this measure. We give in another place the letter of a correspondent, who appears to have bestowed much attention upon the provisions of the Bill, and has in a fair and candid spirit contributed the suggestions which have presented themselves to his mind, with the hope of rendering the measure more effective. We shall be happy to record the success of the Bill in the present session: to attain this, however, great and general exertion must be used by all parties interested.

* * *

Military Railway Misfits

Mr. O. P. C. Collier, General Manager & Chief Mechanical Engineer of the Eritrea Railway & Ropeway, writes that the first verse of the poem of "What's in a Name" in our issue of May 13 recalled to him an amusing incident on the Palestine Military Railway in the first world war, when he was District Locomotive Superintendent at El Arish.

One of his locomotive inspectors had been testing a man who had been sent as a fireman from an infantry unit. On his return he came to Mr. Collier and said: "Well, Sir, I have tested out Private Jones. He didn't seem to have much idea of firing, so I asked him what line he used to be on. He replied: 'You know, Sergeant-Major, I ain't a bloke wot puts the fires in, I puts 'em *out*! I'm from the London Fire Brigade!'" Still, he was willing, and preferred firing to being under fire, and became a very good fireman, and eventually a driver.

Another recruit to the railway from the infantry came to Mr. Collier and said: "Excuse me, Sir, but I think that there must be some mistake about me. I have been sent here as a fitter; but I'm not an engine fitter. I'm a corset fitter!" That was a bit too much of a contrast, and he had to go back to his unit!

* * *

Tailpiece

(Germ-proof booking office windows are being tried out by British Railways)

At a little wayside station
I catch the train each day,
That carries me to business
Quite twenty miles away.

It is no Clapham Junction
Nor yet a Waterloo.
No fast train deigns to stop there,
They all go tearing through.

It only has one siding,
Where oft a pick-up freight
Will shunt a van or horse-box;
And make the local late.

The flower-beds are well tended,
A credit to the staff
Of two who run the station.
They don't do things by half.

I think the station perfect
Except for just one thing:
The booking-office window
Still lets the germs blow in.

R. M.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NIGERIA

Development Plan

A Lagos report states that a £5,500,000 railway development plan, to be financed out of the financial accumulations of the railway, is to be initiated before the end of this year. The first of the many improvements scheduled is a £200,000 scheme for the complete rebuilding of Iddo Station, Lagos, which is to be extended and modernised to include refreshment rooms, waiting rooms, booking hall, and three double platforms.

Other stations to be modernised include Lafenwa (Abeokuta), Ibadan, and Jebba. Improvements will be carried out at Minna, Kano, Jos, Makurdi, Umuahia, and Aba stations.

It is hoped to restore most of the train services withdrawn in 1945 because of war conditions. Sunday services between Iddo and Ibadan will be restored and at least four limited trains will be run each week between the north and the east.

New Rolling Stock

Thirty-two new third class coaches are being built in England. Eight first class coaches are also on order and a large variety of other rolling stock, including 63 cattle vans. Some of the existing first class coaches will be converted to seconds.

A restriction on the amount of heavy luggage permitted to be carried by passengers will be introduced. Country produce is to be restricted to 1 cwt. and the total maximum allowed to any one passenger will not exceed 1½ cwt.

WESTERN AUSTRALIA

New Suburban Station

The first new Perth suburban station constructed since 1924, Meltham, 3½ miles from Perth on the main Eastern Railway, was completed and opened for traffic on December 10, 1948.

It is on a gradient of 1 in 100, and consists of an island platform 450 ft. in length, of suitable height, and carried down at the same slope to form a cantilever verandah 8 ft. 7 in. wide at a lower level, to afford maximum weather protection for the public. The verandah ceiling falls inwards to the side walls and is painted pale green. Access to the platform is by an overhead bridge and ramps.

The new station provides a service to a rapidly-developing residential area within easy rail travel distance of both the city and factory areas. The construction of the platform faces and the overhead bridge was carried out departmentally.

When the platform had been completed a contract was let for the station buildings and the structure was completed early in 1949.

The contractor had to work under difficulties as he had access to only one end of the site to cart all materials, and then was considerably restricted as to working space either side because of the proximity of main lines.

An added difficulty was that because of agitation by local residents, arrangements were made to stop trains at the platform before the station was built, so that use could be made of the new station. This was overcome by provision of a temporary booking office.

New island platform at Meltham, Western Australia

The station building, partly on a new sand fill, is of brick, with tile roof, supported on a concrete beam system of piers extending below the natural ground level.

The design is a departure from the conventional type of local suburban station. All units, including signal cabin and lavatories, are in the one long slender block, with crossover passageways. The roof has been kept up to provide an internal ceiling

PAKISTAN

Earnings for 1948-49

On May 28, Mr. F. M. Khan, General Manager, North Western Railway, held a press conference at the railway headquarters at Lahore. He disclosed that the gross earnings for the year 1948-49 were well over 24 crores of rupees (Rs. one crore is equal to about £750,000 or 3,000,000 dollars). The corresponding yearly gross earnings for 1938-39 and for the period 1940-47 were Rs. 17 crores and Rs. 12 crores respectively. These results were even more encouraging when the handicaps under which the railway had been working were taken into account. The General Manager deplored the fact that many passengers had attempted to travel during the last year without paying their fare. He appealed to the press and the public for full co-operation with the railway's efforts to eliminate ticketless travelling. The N.W. Railway is now running 189 passenger trains a day as against 72 during the period September 15, 1947-April, 1948, when its management had just been transferred to the Government. The punctuality figure for the year 1948-49 was 65 per cent., and the figure for March, 1949, 81 per cent.

CANADA

Negotiations for Temiscouata Railway

The Government has begun negotiations for the purchase of the standard-gauge Temiscouata Railway in eastern Canada. The railway, owned by a bondholding association in Great Britain, operates 113 miles of line from Riviere du Loup in eastern Quebec to Edmundston and Connors in western New Brunswick.

If an agreement can be reached the single-line railway will be turned over to the Canadian National Railways as a feeder line to serve the Riviere du-Loup-Edmundston area.

New Coaches for Newfoundland

Eight new de-luxe coaches, moving on C.N.R. flat wagons because of their narrow gauge, left Montreal on May 17 for Newfoundland. They were ordered by the Newfoundland Railway before its entry into the C.N.R. system and bear the Newfoundland Railway insignia and distinctive colours.

New Vancouver Island Ferry

The Canadian Pacific Railway has placed an order for a new passenger and car ferry to operate between Vancouver and Nanaimo, Vancouver Island. Since 1939 the number of cars shipped by this route has increased from 40,000 to almost 80,000.

Construction of the ferry will begin immediately at the Fairfield Yards, Govan, Scotland. It will be approximately 340 feet in length and weigh 6,000 tons, and will carry 1,500 passengers and 130 cars. It will have a combined restaurant and coffee bar with accommodation for 158 persons.

The ship will replace the *Princess Elaine* in year-round operation between Nanaimo and Vancouver. The *Princess Elaine* will continue the service in the summer months only.

BRAZIL

Output of Rails at Volta Redonda

The Brazilian national iron and steel works at Volta Redonda, main undertaking of its kind in Brazil, produced 61,911 metric tons of steel rails in 1948.

FRANCE

Declining S.N.C.F. Traffic Receipts

Although the working receipts of the French National Railways for the period January 13 to May 20 show, at fr. 99,616,293,000, an increase of 15·2 per cent. in respect of the total for the corresponding period in 1948, this expansion is fictitious, because the second total is based on tariffs some 23 to 24 per cent. lower than those at present in force. The first-named figure points to a decrease over several months. The apparent increase is at present only 5·8 per cent. in respect of the receipts for the carriage of postal parcels and small articles, and only 14·9 per cent. for full wagon loads and small consignments. The present apparent increase in passenger receipts totals 18·1 per cent. and luggage receipts show a very similar figure.

The former General Manager of the French National Railways was envisaging a reduction of about 10 per cent. in the goods rates to retain traffic which was being diverted to road transport. A

Ministerial decision on this policy is expected in the near future, but it is unlikely to be in its favour for the reason that the envisaged reduction would involve a loss of from fr. 7,000 to 8,000 million in respect of a third of the present goods traffic.

ITALY

Refrigerated Goods Wagons

The reconstitution of Italian goods rolling stock since the war has enabled attention to be paid to the development of a fleet of special types of goods wagon for the transport of perishable and refrigerated goods typical of agricultural products and involving long-distance conveyance to other countries.

Last year, 2,600 wagons of a new type with ventilating equipment, for consignments of vegetables, were placed in service. This brought the total number of these covered wagons to 31,600 by the end of that year. It is hoped to increase this fleet to 34,000 units by the end of 1949. The number of isothermic and refrigerated wagons in service is 4,500 and most of these were pre-war vehicles reconstructed after the war. Five hundred more units of both types are to be built. More than 1,000 containers for perishable goods are at present in use; of these, 60 are of the refrigerated type.

GERMANY

Rhine Bridge Restored

After nearly two years of work the reconstruction of the double-track bridge carrying the Mainz-Frankfurt main line across the Rhine was completed early in June. For the time being only one track is available, but it is hoped that the second track will be in service by the autumn. The bridge connects Mainz-Sud Station, on the Mainz-Ludwigshafen main line (western bank of the Rhine), with Mainz-Gustavsburg, on the eastern bank, 1¼ miles from Mainz-Sud, and 20½ miles from Frankfurt. Mainz-Sud is the junction between the Mainz-Ludwigshafen line and the line from Frankfurt (along the southern bank of the Main river). The old bridge was blown up by the retreating Germans shortly before the cessation of hostilities in 1945. It was possible to reconstruct the damaged pillars and to re-use them for the new bridge.

Berlin-Paris Service Restored

The two French trains which used to operate weekly between Berlin and Paris have been restored. They leave Berlin-Tegel Station on Tuesdays and Fridays and reach Paris *via* Mainz; in the reverse direction, Paris is left on Sundays and Wednesdays. Between Berlin and Mainz the trains carry through coaches for, and from, Baden-Baden, the seat of the French Military Administration for the French-occupied zone.

POLAND

Development of Goods Traffic

In 1948, the goods traffic averaged 2,365,000,000 *tonnes*-km. a month as compared with a monthly average of 1,864,000,000 in 1938. In December, 1948, the total, at 2,352,000,000, was slightly below the monthly average for that year, and a lower level still, 2,184,000,000 *tonnes*-km., was reached in January.

Publications Received

The Things We See—No. 5, Public Transport. By Christian Barman. London: Penguin Books. 8¼ in. × 7 in. 64 pp. Illustrated. Price 2s. 6d.—The principles of industrial design, as applied to railway locomotives and rolling stock, road vehicles and stations, and other installations for handling passenger traffic, are set forth in a short essay. This is followed by some excellent photographs selected by the author to make his points; the subjects range from stage coaches to modern refreshment rooms in Britain and U.S.A. and on the Continent. Agreement may be difficult in some cases of individual taste, as of his choice of an earlier G.W.R. Churchward 4-6-0 as an example of that decade in which "the naked locomotive with its uncovered boiler reached its summit of perfection." The author however draws from a wide field; some of his choices of less spectacular examples of good design, such as the London Transport bus shelter, the B.O.A.C. airport service coach, and the nineteenth-century G.N.R. suburban station, seem particularly happy.

The Locomotive Exchanges: 1870-1948. By Cecil J. Allen. London: Ian Allan Limited, 282, Vauxhall Bridge Road, Westminster, S.W.1. 8¾ in. × 5½ in. 176 pp. Illustrated. Price 12s. 6d.—Although the extent to which any one locomotive exchange will influence future designs is difficult to discern at the time, such trials often proved their worth in promoting the spread of knowledge and experience among the old companies, and, in some cases they preceded changes in policy that were little less than revolutionary. The controversy that is aroused by locomotive trials has by no means been lacking in the 1948 exchanges, certain details of which have been given in Mr. Cecil Allen's "British Locomotive Practice and Performance" articles in our associated contemporary *The Railway Magazine*. In his book on locomotive exchanges, the author makes extensive reference to the 1948 trials, though he does not aspire to give more than a first-hand record of the various contestants, performance on the road. The comparative merits of the competing locomotives can be ascertained only after such matters as cost of building and maintenance as well as the dynamometer car figures, have been compared, but the value of Mr. Allen's book lies in its abundant records skilfully fused into a volume of good reading. Interesting details of earlier locomotive exchanges are given in the first part of this book, which includes chapters on the L.N.W.R. "Precursor" and "Experiment" trials, the 1910 *Polar Star* and *Worcestershire* exchange and the famous G.W.R. and L.N.E.R. trials of 1925.

Railwaymen's Year Book, 1949-50. London: Railwaymen's Publications Limited, Vernon House, Sicilian Avenue, W.C.1. 8¼ in. × 5½ in. 112 pp. Illustrated. Paper covers. Price 2s. 6d.—The fourth edition of this illustrated information and reference annual for railwaymen follows a similar layout to previous issues. Details of the Members and Chief Officers of the British Transport Commission and its Executives, and of the railway Regions, have been expanded and brought up to date, and the foreword this year is by Sir Cyril Hurcomb, Chairman of the British Transport Commission. Features in this edition include articles entitled "London Transport Looks Ahead" and "Progress of British Railways," by Lord Latham, Chairman of the London Transport Executive, and Mr. W. P. Allen, Member of the Railway Executive, respectively, and sections on railway trade unions, associations, and organisations, "Crack Trains of Britain," electrification, holiday and gardening information, rates of pay, and particulars of educational schemes for railway staffs.

A Dictionary of Metallography. By R. T. Rolfe. Second Edition: revised. London: Chapman & Hall Limited, 37, Essex Street, W.C.2. 8¼ in. × 5¼ in. 287 pp. Price 18s. net.—Although this publication is described as a dictionary, it is really a comprehensive encyclopædia of convenient size containing 1,350 principal terms relating to metals, alloys, and metallurgy. The subject of cast iron, for example, is dealt with in an article of about 1,100 words. As electricity plays a fundamental part in the collateral science of metallography—as in atomic structure, electro-deposition, and corrosion phenomena generally—some electrical terms are included. There is also a useful list of recognised abbreviations used in the text. Mr. Rolfe is to be congratulated on producing a reference work of great practical use to the engineer.

The "King Arthurs" and "Lord Nelsons" of the Southern Railway. Famous Locomotive Types No. 4. By S. C. Townroe. London: Ian Allan Limited, 282, Vauxhall Bridge Road, S.W.1. 7¼ in. × 5 in. 47 pp. Illustrated. Paper covers. No price stated—Urie's first "N15" 4-6-0 locomotive, No. 736, which in later years was to become the "King Arthur," *Excalibur*, went into service in 1918 and after thirty years in main-line service, with various modifications, may still be seen at the head of Southern Region expresses. During this time, these fine engines and their descendants, the "Lord Nelsons," have enjoyed a distinguished career and have been the subject of numerous modifications, some of which, such as the redesigned front-end arrangements, have produced results of singular importance. The controversy that for a number of years surrounded the comparative merits of the two classes, adds special interest to Mr. Townroe's booklet, in which friends and students of "Lord Nelsons" and "King Arthurs" will find interesting details of origin of these engines, their design, and individual peculiarities.

Rail et Traction.—The Association Belge des Amis des Chemins de Fer has resumed publication of its illustrated journal, which now appears bi-monthly and in a new pocket-size format. It is published from 14, Place de la Constitution, Brussels Midi, at fr. 8 a copy.

Circular Tours in Scotland.—An interesting booklet has been issued by British Railways dealing with circular tours in Scotland. Of handy pocket-size, and extending to 90 pages, it gives details of the many circular tours at reduced fares, by train, motor, and steamer which have been arranged for the 1949 season. In addition to the day and period tours listed, however, circular tour tickets are also issued by prior arrangement to meet individual requirements in respect of round tours.

Replacement and Strengthening of Metal Bridges

Notes on two reports presented to the enlarged meeting of the Permanent Commission of the International Railway Congress Association

IN our issue of June 3 we mentioned that, at the enlarged meeting of the Permanent Commission of the International Railway Congress Association in Lisbon, the recovery and strengthening of metal bridges that have reached the theoretical limit of safety was one of the subjects discussed.

Two reports were submitted, one from information compiled in almost all European countries, except the U.S.S.R., and the other covering all the English-speaking countries. The respective reporters were M. Cassé, Engineer, Bridging Division, French National Railways, and Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Region, British Railways.

In stating that the replacement or strengthening of metal bridges is necessitated mainly by the introduction of heavier locomotives, the report by M. Cassé points out that their use on main lines necessitates stronger bridges; also on the secondary lines to which the less powerful engines they replace are relegated. When a new series of locomotives is proposed, this "cascade" effect on bridge strengthening and renewal costs should be considered.

Deterioration of the metal from corrosion and, sometimes, wear, also leads to bridge-span replacement or reinforcement. The limiting stresses of weak or doubtful spans are usually based on those for new bridges, and are clearly laid down in the safety regulations of various countries. With mild steel, about half the limit of elasticity is generally permitted. The assumed moving load almost always exceeds that to which a span is subjected in practice.

With increasing overload and deterioration accruing with age, a definite check on the strength of a span is imperative. This is invariably made by calculation and sometimes confirmed by measurement of deformation. In computing theoretical safety as a ratio of stress to limiting stress, there is a tendency to find a more precise definition of the former and to increase the latter slightly. As a result, some bridges which formerly would have been condemned, have been retained. On the other hand, the standard of maintenance and the observed oscillation under a train at speed must be considered, and, at their worst, may condemn a theoretically sound bridge or, at any rate, dictate a speed restriction. As a rule, theoretical safety regulations are regarded by railways as too stringent and therefore capable of slight relaxation without danger.

Methods Adopted

Reinforcement by riveting on new sections or members is one of the commonest forms of strengthening, but its efficacy depends on good workmanship and an assured distribution of the load between the original and the reinforced parts. Similar reinforcement by welding is also becoming more popular, but here again not only workmanship and equal load-distribution, but also the composition and quality of the basic metal, the arrangement of the welds, and their effect on the original members, have to be taken into account. Although its defects are not easy to detect, welding has advantages over riveting, and, if carefully supervised, should be satisfactory.

Concrete reinforcement generally decreases cost of maintenance, and may be a valuable source of strengthening, provided the metal is thoroughly cleaned, measures to prevent shrinkage and cracking are taken, and efficient anchorage is given.

The introduction of intermediate piers and other methods of altering the functioning of a span, are widely practised, but girder duplication remains a simple and obvious form of strengthening.

Complete replacement, which, in principle, gives the best results, must be justified financially. Lower maintenance costs are to its credit, but local considerations of site and traffic, and availability of materials and funds, often dictate a decision.

Mr. Robertson's report, based on information from 16 English-speaking countries, covers only underbridges. Reasons given for investigating the strength of existing bridges are similar to those quoted already from Continental countries. Methods for assessing their strength are also generally alike, but in English-speaking countries it is usual to allow somewhat higher stresses in existing than in new bridges, which are expected to last longer and require lower maintenance costs.

British Practice

In Great Britain assessment by calculation is checked with strain gauges only when calculated stresses approach permissible limits. Measured stresses are generally found to be lower than those calculated, because a rigid deck system often adds appreciably to the strength of a span, and riveted joints produce end-fixity and beam-continuity not easily assessable by calculation. In calculating stresses in existing bridges, British Standard Specifications usually are adopted. They lay down recommendations for working stresses, and such figures as the equivalent length of compression members, and provide diagrams for standard unit trains for calculating the static live load; multiples of these units are applicable according to the classification of the line. Tables are given for maximum bending moment and shear forces for different lengths of span.

As a result of dynamic tests carried out in 1927, the British Bridge Stress Committee recommended that bridges should be designed for any one of the following groups:—

Group	Units static load	Hammer blow (tons)		R.p.s.
A.	20	5	at	5
B.	16	12·5	,,	5
C.	15	15	,,	5

Tables are available, giving the equivalent uniformly-distributed load for each group on different spans, and including allowances for rail-joint effect and lurching. Each locomotive is classified in its appropriate group.

In the U.S.A. the strength of an existing bridge may be assessed from appropriate specifications drawn up by the American Railway Engineering Association, which includes allowance for impact. Some American railways have their own specification. As in Great Britain, calculated stresses approaching the limit are checked by measurements, usually on electric strain gauges with oscillograph recordings.

In Australia stresses are assessed by calculation only, using Coopers E40 or E55 loading according to line classification. For existing bridges 80 per cent. of the yield-stress is adopted as permissible stress; impact assessment is based on the British Bridge Stress Committee's report. British practice is also followed in parts of Africa and in Ceylon.

India has its own Bridge Rules and Steel Bridge Code. The same live load is assumed for existing as for new spans, and the standard train load varies with line classification and gauge. Tensile and compressive stresses allowed in existing truss spans may be 5 per cent. higher than in new spans, and shear and bearing stresses in rivets 10 per cent. higher. For other types of span the corresponding permissible increases are 11 per cent., and 25 per cent. Calculations are sometimes checked by measurement with Faraday-Palmer stress recorders and optical deflectometers; the measured stresses are generally lower than those calculated, and so the latter are accepted as safe.

Dealing with Weak Spans

In the main, greater load capacity, longer life, and lower maintenance costs of entirely new spans mean that complete renewal is more common in all countries than either strengthening *in situ* or recovery and subsequent re-use. In Australia it has been found more economical to build intermediate piers, wherever possible, than to strengthen spans.

Strengthening has been carried out in many ways. On the Western Region, British Railways, it is undertaken only when the estimated cost is less than 45 per cent. that of a new span. Most railways have removed a number of existing spans and either re-used them elsewhere immediately or kept them in store for future use, as a rule on lower-class lines. On the Pennsylvania Railroad, however, the standard of secondary lines has now been raised so much that this is impossible. Only on the Southern Region, British Railways, and the Indian railways have girders been removed, repaired, and re-used according to programme at the original or other sites with the same classification.

The methods of actual replacement differed widely on the various railways, but the removal of two 155-ft. spans from the now-abandoned Sind-Peshin section of the Indian N.W.R. is described in detail.

Reinforcement of bridge members by both riveting and welding is discussed. Only from the U.S.A. is subsequent failure of welded reinforcement reported; elsewhere, both methods appear to have been used satisfactorily. Additional members have been used occasionally on British railways, generally as diagonals between the stiffeners of plate girders, or the substitution of heavier stiffeners. Knee-bracing of top chords and deepening of wrought-iron plate girders by the addition of sections are other methods recorded.

In the United States eye-bars have been shortened by heat-treatment. Clamps were fixed about 2-3 ft. apart and the central 1 ft. of the bar between them was heated with torches to 1,600°-1,800° F.; the temperature was measured by pyrometer. The clamps were then drawn together with bolts, and the bar thus shortened; shortening up to 1¼ in. has been effected in this way. To determine how much the bar should be shortened, an estimate of the dead-load stress may be made by measuring the frequency of vibration in the bar. The whole operation can be completed *in situ* in an hour. In wrought-iron bars so treated fatigue and ultimate strength of the metal are not appreciably affected.

New Vessel for Cross-Channel Service

British Railways T.S.S. "Maid of Orleans" has commenced service on the Folkestone-Boulogne route

First class lounge of the "Maid of Orleans" showing the wide corridor and seating arrangements at the side of the ship

THE latest addition to the fleet of British Railways owned vessels, the *Maid of Orleans*, made its inaugural trip on June 23, on the Folkestone-Boulogne short sea route. The new ship, built by William Denny & Bros. Ltd., has been designed with all the special features required for this type of service, and can accommodate 1,400 passengers. It has a crew of 76; 25 to 30 motorcars, baggage and mails also can be carried.

The design is on modern lines, with raked and rounded stem, modern stern, one short funnel, and two masts. A balanced rudder is fitted aft and a bow rudder is provided for use when steaming astern into the Channel ports. Each rudder is operated by twin motor electro-hydraulic steering gear manufactured by Brown Bros. & Co. Ltd. High power for astern working is provided to ensure safe navigation into the harbours, and permits the vessel to steam astern at 17 to 18 knots.

The principal dimensions are as follows: Length overall, 341 ft.; breadth moulded, 50 ft.; depth moulded to main deck, 18 ft.; draught loaded, 12 ft. 6 in.; gross tonnage, 3,777; nett tonnage, 1,670. The two sets of geared turbine machinery develop a total of 11,000 shaft h.p., and a speed of over 22 knots was attained on trials. The vessel was built to Lloyds Special Class A for cross-Channel service.

Denny Brown Stabiliser

The *Maid of Orleans* is the first vessel built for the short sea route to be fitted with a Denny Brown stabiliser, and the decision to install this feature in the vessel was made as a result of the success of a similar unit fitted in the *Falaise*, which operates from Southampton normally, but has, for short periods, relieved the "Golden Arrow" steamer on the Dover-Calais route. During its service at Dover, the *Falaise* encountered some bad weather, and the use of the stabiliser was found to reduce rolling to a negligible quantity. The large combined wheelhouse and chart-room is fitted with windows on all sides and has a comprehensive equipment of modern navigational instruments. A Marconi Radiolocator marine radar equipment is installed with the instrument fitted in a convenient position.

Ventilation

Mechanical ventilation throughout the vessel has been designed and installed by Thermotank Limited. The thermotanks and exhaust fans are housed in rooms on the bridge and boat decks, air being drawn in through spray-excluding jalousies, thus obviating unsightly ventilators. Throughout the accommodation, ventilation is provided on the thermo-reg system, air distribution being *via* punkah louvres, or diffusers.

In each private cabin, the quantity and temperature of the air can be regulated by turning the punkah louvres and regulating valves in the trunking, providing for individual temperature control of all public rooms. In the galleys, powerful extraction fans ensure that cooking odours do not permeate to adjacent accommodation. Four powerful torpedo fans supply air through insulated trunking to the engine room, where it is distributed evenly by patent diffusers.

The main galley, pantry and dispense, are situated immediately abaft the restaurant, with a service hatch between the pantry and restaurant. The equipment includes bench and sink units of steel, with heavy gauge stainless steel tops, making the whole hygienic and particularly strong and durable. The galley contains a four-oven island electric range, a steam cooker for vegetables, a stainless-steel steam-heated stock pot, electric mincer and mixer, an electric fish-fryer, and an electric hot water boiler. The main refrigerator is adjacent to the galley, and a de-frosting room and butcher's shop are provided. The pantry equipment includes electric hot press, electric hot water boilers, automatic domestic refrigerators, electric ice-cream mixer and conservator, electric grill and toasters, and stainless-steel plate and saucer racks. All sink units, benches, electric stove, and most appliances and cooking utensils, have been supplied and installed by Thomas Bishop & Company. A separate and well fitted crew's galley is provided.

Passenger Accommodation

An entrance vestibule to the first class accommodation is situated at the forward end of the boat deck. Contrasting panels veneered with Queensland maple, courbaril, and zebrano, give a pleasing appearance, and a special feature is a bronze equestrian statuette situated in an illuminated alcove over the main staircase, representing St. Joan of Arc. Beneath the statuette is a carved panel commemorating the launching by Lady Missenden.

Opening off the forward end of the vestibule is an observation lounge measuring approximately 38 ft. by 28 ft. The sides of this room are panelled with veneers of walnut, zebrano, Philippine greywood, birch, and burr walnut. Comfortable settees and armchairs, upholstered in green and brown moquette, are provided, and three writing desks are situated at the forward end. Window curtains and Korkoid floor covering tone well with other furnishings. Fluorescent lighting is installed in this room.

Two *cabines-de-luxe* open off the after side of the vestibule. One is panelled in Californian satinwood, birdseye maple and coral burr, and the other in cinnamon, Philippine greywood and Pacific walnut. Both cabins have two settees with Dunlopillo cushions upholstered in moquette, which can be adjusted to form divan beds if required. The cabins are equipped with a writing desk, a dressing table, and a coffee table, and have heavy pile carpets, with window curtains to tone. Each cabin has a curtained recess for luggage and clothing, and a lavatory arranged *en suite*. At the after end of the boat deck there is a panelled entrance vestibule leading to the third class accommodation.

Upper Deck

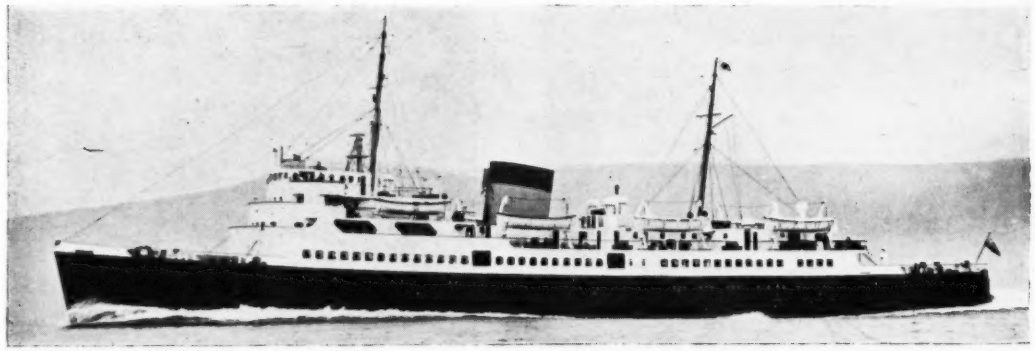
A feature of the public rooms on the upper deck is a combination of good deck height and large square side windows, emphasising the spaciousness of the accommodation, which is lit by fluorescent lighting. At the forward end there is a smoke room, with a bar. The walls are panelled, some in Carpathian olive ash, with figured olive ash veneer. The appointments of the bar include large automatic refrigerators and a lift direct to the main store. Corner settees, armchairs and tub chairs are provided, and at the after end of the room is a fireplace with burr walnut surround and Magicol electric fire.

Extending aft to the restaurant is a large general lounge, with armchairs and tables. The chairs are upholstered in green wool moquette. A feature of this lounge is the cream-coloured plastic panelling, which gives a bright effect. The wireless, passport, ticket, and Pullman offices are sited here, and there is good circulating space for passengers.

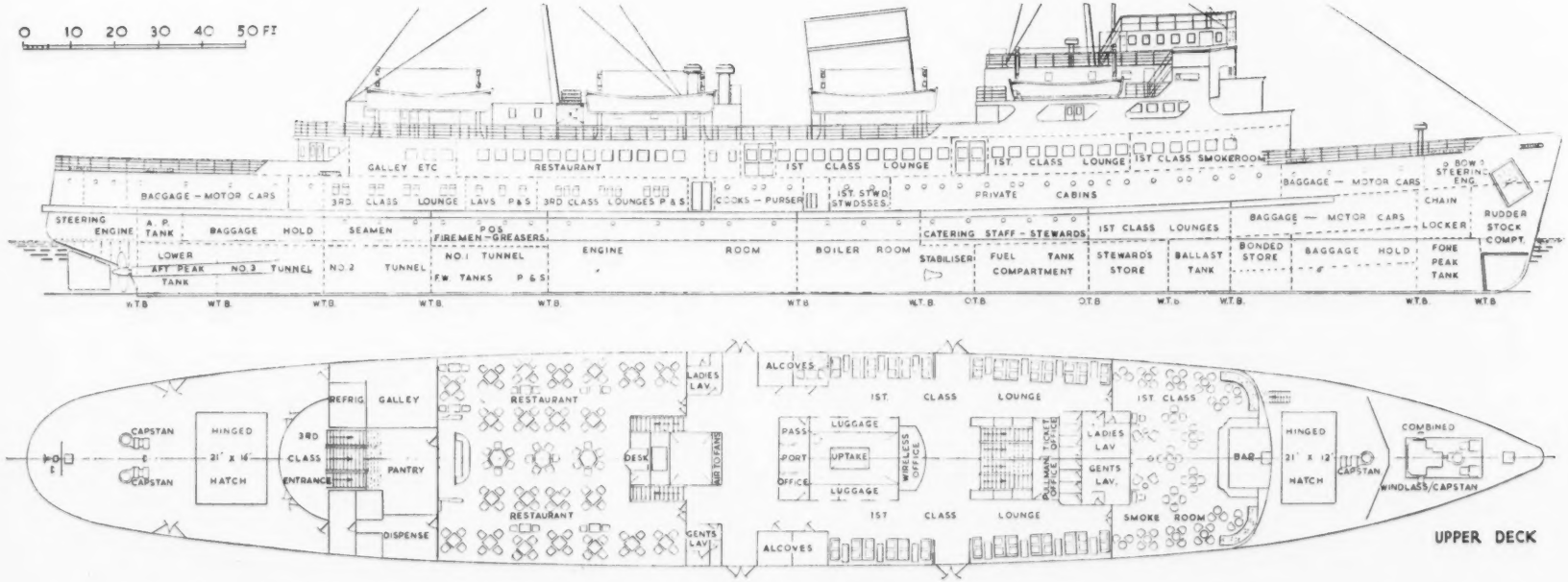
The large one-class restaurant is entered from the after end of the lounge, and has seating for 118 passengers at two, four, and six-seat tables. The restaurant extends the full width of the ship and has a spacious appearance, large square windows at the side providing good natural lighting. A bright atmosphere has been

(*Continued on page* 21)

New Vessel for Cross-Channel Service



T.S.S. "Maid of Orleans" on a trial trip



Profile and upper-deck plan of the new vessel, built for British Railways by William Denny & Bros. Ltd., for the Folkestone-Boulogne service

New Vessel for Cross-Channel Service

First class smokeroom and bar

First class restaurant in the "Maid of Orleans"

New Vessel for Cross-Channel Service

The observation lounge of the "Maid of Orleans"

Third class ladies' lounge

Sound Equipment at Liverpool Street Station

Over eighty loudspeakers of four different types serve platforms, circulating areas, and refreshment rooms

Part of the main-line circulating area at Liverpool Street Station, showing three-unit cabinet loudspeakers

AMONG the improvements carried out in recent months at Liverpool Street Station, British Railways, Eastern Region, both in readiness for the Shenfield electrification and as part of a general overhaul of the amenities at this terminus, there has been a complete renewal of the loudspeaker announcing system serving the circulating areas, platforms, and refreshment rooms. A main 200-watt amplifier normally operates all these loudspeakers, numbering over 80, but provision is made for connecting the east-side units to a separate 60-watt amplifier, so that a second announcer can broadcast independently to this part of the station if suburban services are disturbed in any way.

The apparatus was supplied to the requirements of the Signal Engineer, Eastern Region, by the General Electric Co. Ltd., and was brought into use without interrupting the normal service of train announcements; the change-over being made in one night between 10 p.m. and 8 a.m.

A room in the general offices overlooking No. 9 platform is set aside for the main amplifier installation and the announcer. A special local telephone circuit gives the announcer two-way communication with the following points: Stationmaster; main-line departure inspector; main-line train inspector; main-line arrivals, No. 11 platform; west-side inspector; west-side signal-box; east-side inspector; east-side signal-box.

The above circuits are rung by a code-ringing key on the announcer's control cabinet; in addition, there is an ordinary telephone extension from the station exchange. When the announcer's microphone is "live," a warning lamp lights up outside the announcer's room and incoming telephone calls from either line are indicated by two other lamps on the control cabinet, the bells being silenced. A further lamp on the cabinet is illuminated when the east-side emergency equipment is in use. A mirror fitted alongside the announcer's position gives a view from the desk over Nos. 9 and 10 platforms and parts of the station beyond.

The microphone is a ribbon type used in conjunction with a pre-amplifier panel in the main rack assembly. Two driver panels are provided, one being a stand-by that can be brought into action very rapidly by means of a change-over switch in case of emergency. The change-over can be made in the course of an announcement almost without perceptible interruption.

Loudspeakers are grouped in seven circuits, divided as follow among the platforms and other parts of the station:—

(1) Nos. 7 and 8 platforms
(2) No. 9 platform
(3) West-side circulating area
(4) No. 10 platform
(5) No. 11 platform and east-side circulating area
(6) Cab rank outside main booking office
(7) All refreshment rooms

All the platform loudspeakers are a short 2-cell horn type suspended from catenaries, with their cells one above the other. This arrangement gives a long narrow lobe of coverage, that concentrates the announcements on the platforms to which they apply. The loudspeakers are hung in a single line on all platforms except No. 8, where a double line is installed, because of its width and the presence of pillars down the centre, which have the effect of dividing it into two halves.

When the independent east-side amplifier is being used for special announcements, No. 5 circuit (with the exception of platform No. 11) is transferred from the main amplifier, and the east-side platforms are served by bringing into use a number of Junior re-entrant horn loudspeakers over the barriers. These loudspeakers give a coverage extending about 120 ft. down the platforms. The 60-watt east-side amplifier is installed in the inspector's office and is used in conjunction with a hand microphone incorporating an on/off switch.

In the west-side circulating area and the circulating area at the top of No. 9 platform, the loudspeakers are a 3-unit cabinet type giving wide angle distribution. Multi-beam loudspeakers, having nine units arranged on three facets, serve the east-side circulating area. In various parts of the station Senior Industrial loudspeakers providing a good quality local sound output are installed to ensure adequate coverage in places where screening from structures in the station is experienced.

All refreshment rooms are equipped with cabinet-type loudspeakers, with a sloping front. The cabinets have a sycamore finish in rooms that have been modernised and are finished in walnut in the remaining rooms. Volume controls on the cabinets enable the output to be set to a convenient level for prevailing conditions, without it being possible to turn it down below audibility.

Main 200-watt amplifier and announcer's desk

British Railways New Diesel Locomotive

Four 500-h.p. engines are coupled mechanically to the driving wheels

THERE is at present under construction at the L.M.R. works, Derby, a diesel driven locomotive for main-line traction in which the engines are coupled mechanically to the driving wheels. The locomotive has the 4-8-4 wheel arrangement and is fitted with two driving cabs enabling it to be driven from either end. Axle loads are so arranged that a high route availability is possible.

Four supercharged diesel engines, each developing 500 h.p., are housed in pairs at either end of the locomotive, and are coupled to the driving wheels through fluid couplings and a gearbox in such a way that main-engine horsepower is maintained as nearly constant as possible over the designed range of engine speeds, and the necessary high torque on starting and at low speeds is obtained without any form of torque multiplier. Auxiliary diesel engines are used to drive the blowers for the main engines, and auxiliaries such as fans, water and oil pumps, and services for starting and lighting.

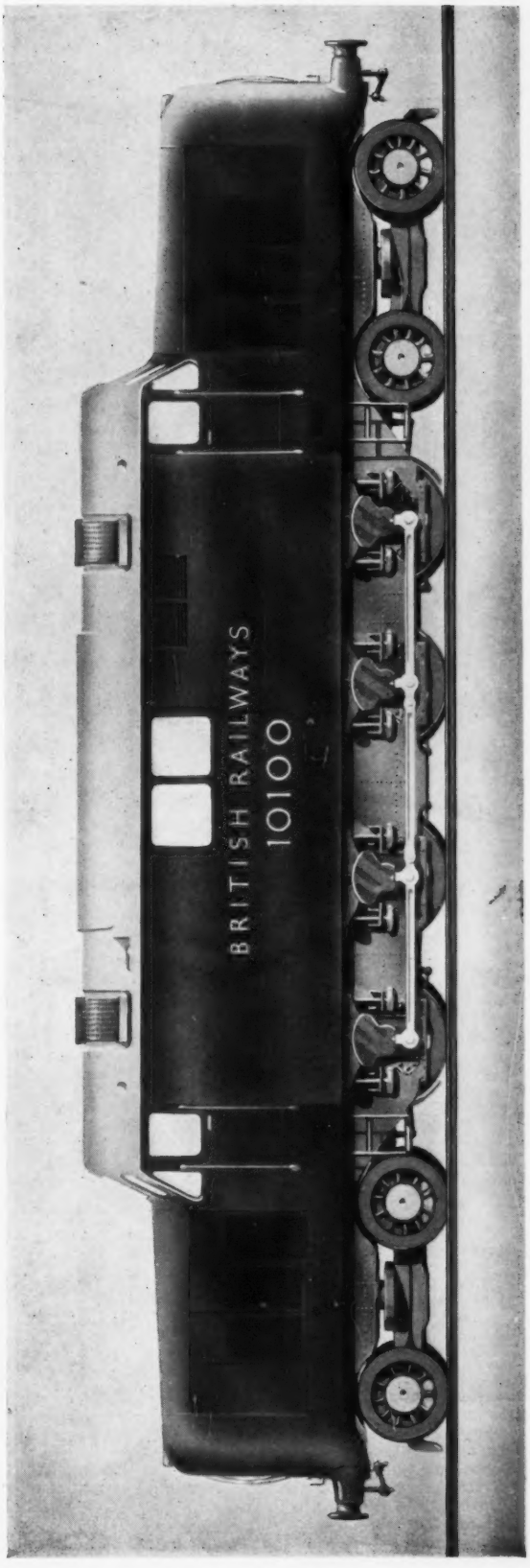
The gearbox unit, which combines the drives of the four engines, is placed amidships, and the drive to the wheels emerges from the gearbox at two transverse shafts which are coupled to the two inner driving axles by flexible quill drives. These allow for the rise and fall of the axleboxes in the horn guides and also introduce an element of flexibility to protect the gearbox from traction shocks.

Thanks to the low weight of transmission it is possible in this locomotive to provide diesel engines of much greater piston area for a given tractive effort than in existing diesel locomotives of the same weight. Lighter weight and lower transmission losses are further advantages of this locomotive, which can readily be adapted either for express passenger or heavy goods trains.

The locomotive, which will have a maximum speed of 84 m.p.h., is being constructed to the design of Mr. H. G. Ivatt, Chief Mechanical Engineer, London Midland Region, in collaboration with Fell Developments Limited, and Ricardo & Company, and the system of transmission as well as various ancillary features have been patented by the inventor, Lt.-Colonel L. F. R. Fell. The locomotive has been numbered 10100 and is expected to be ready for trials in the early part of next year.

"FLOODS IN THE NORTH" FILM.—A short documentary film, "Floods in the North," has been made by the Railway Executive depicting the measures taken to restore railway communications and to repair the extensive damage caused by the disastrous floods in South-east Scotland last year. The film, which is introduced by Sir Eustace Missenden, Chairman, Railway Executive, is intended both as a record of the way in which the various problems were tackled, and as a semi-instructional film for railway technical staffs, particularly on the engineering side. Shooting was carried out principally by the British Railways (Southern Region) Film Unit and by the Commercial & Educational Film Company, and the production was supervised by Mr. J. Masterton, Assistant (Film & Photographs) to the Public Relations Officer, Railway Executive.

British Railways Diesel-Mechanical Locomotive



Artist's impression of the diesel-mechanical locomotive, powered by four 500-h.p. engines, now under construction at the Derby Locomotive Works of the London Midland Region of British Railways

New Double-Deck Stock, Long Island Railroad

(*See editorial note on page 2*)

A 9-coach multiple-unit electric train of double-deck vehicles at Jamaica, in the suburban area of New York

The two-tier seating arrangement, which accommodates 132 passengers, compared with an average of 72 in the standard coaches

View through centre corridor of 10-coach train, from which passengers step up or down to the seats

Trainman at microphone of public address system, used to announce stations and to give other information to passengers

RAILWAY NEWS SECTION

PERSONAL

Colonel A. H. C. Trench and Lt.-Colonel E. Woodhouse, Inspecting Officers of Railways, Ministry of Transport, retired yesterday (June 30).

Mr. S. H. Fisher, Deputy Chief Regional Officer, London Midland Region, British Railways, is retiring on September 30 next.

Mr. P. C. Raynor, who has been appointed as one of the two Assistant Commissioners to act with the Chief Commissioner of Railways as the Western Australian Government Railways Commission, has been a member of the staff of the Western Australian Railway Department since he joined the Audit Branch in 1911. In 1921 he was promoted, and transferred to the branch of the Secretary for Railways, afterwards holding the positions of Commercial Officer, Finance Officer and Assistant Secretary. He became Personal Assistant to the Commissioner of Railways in 1946, and in August, 1948, became Secretary of the Department. He has recently been Acting Assistant Commissioner of Railways.

Mr. P. C. Raynor

Appointed an Assistant Commissioner of the Western Australian Government Railways

Road Passenger and Road Haulage Executives

The Minister of Transport, in a Parliamentary written reply on June 27, announced the membership of the newly-constituted Road Passenger Executive, as follows: Mr. George Cardwell (Chairman), £5,000 a year; Mr. W. Vane Morland (whole-time Member), £3,500; Messrs. James Amos, unpaid, William Beckett, £750, and Stanley Kennedy, unpaid (part-time Members).

Mr. Cardwell and Mr. Beckett vacate their appointments as Members of the Road Haulage Executive.

Details of the appointments of the original Members of the Road Transport Executive, which has now been re-named Road Haulage Executive, were given in our issues of February 13, 20 and 27, 1948. The membership of the Road Haulage Executive is now as follows: Major-General G. N. Russell (Chairman), £5,000; Messrs. Claud Barrington, £3,500; Harold E. Clay, £3,500, and Archibald Henderson, £3,500 (full-time Members); Messrs. Henry Dutfield, £750, and Percy J. R. Tapp, £750 (part-time Members).

The Members of the Road Passenger Executive will be appointed for a term expiring on September 30, 1952. The appointments of the Chairman and full-time Members of the Road Haulage Executive run to September 30, 1952, and those of the two part-time Members to September 30, 1950.

Dr. E. Branger, Manager of the Rhaetian Railway, who retired yesterday (June 30), was appointed to that position in 1936, after a long period of service as Mayor of Davos. He had been a member of the council of administration of the Rhaetian Railway since 1927, and from 1934 until his appointment as Manager was Chairman of that council. Since 1938 Dr. Branger has also been a member of the council of administration of the Swiss Federal Railways.

Dr. E. Branger

Manager of the Rhaetian Railway, 1936-49

The late Mr. Finlay Forbes Scott, who was Superintendent of the Line, London Brighton & South Coast Railway, from 1907-22, left £69,089.

The President of the Board of Trade has appointed a committee to consider the organisation and constitution of the British Standards Institution in the light of the increasing importance of standardisation and the extended volume of work likely to fall on the B.S.I. The members are: Mr. Geoffrey Cunliffe (British Aluminium Co. Ltd.), Chairman; Sir William Palmer (British Rayon Federation); Mr. A. V. Nicolle (Automotive Engineering Co. Ltd.); Mr. Roger Duncalfe (British Glues & Chemicals Limited); Mr. E. P. Harries (T.U.C.); Mr. O. W. Humphreys (General Electric Co. Ltd.); Sir Ernest Lemon (chairman, Ministry of Supply Committee on Engineering Standardisation, and a former Vice-President of the L.M.S.R.).

Mr. V. McIvor, A.M.I.Mech.E., who was appointed Stores Superintendent of the Ulster Transport Authority shortly after its formation last autumn, was born in Belfast. After completing his general education in Belfast and Larne, he was apprenticed to Charles Hurst Limited, Automobile Engineers, Belfast, in 1923, studying at the same time at the Belfast College of Technology. In 1931 he was appointed Manager in the firm of Isaac Agnew Limited, Automobile Engineers, also of Belfast, with which he remained until 1937, when he took up an appointment with the former Northern Ireland Road Transport Board. At that time the Board was concerned at the heavy consumption of fuel in its vehicles, and set up a special department to deal with the subject; and Mr. McIvor was placed in charge, with the title of Fuel Economist. As a result of his work, consumption was cut down considerably. He was later appointed District Engineer, and was located in Belfast from 1939-40 and in Londonderry from 1940-44. In 1944 he returned to Belfast as Stores Superintendent, which post he held until his appointment to the same position with the Ulster Transport Authority.

Mr. V. McIvor

Appointed Stores Superintendent of the Ulster Transport Authority

Mr. F. E. Bogle, who was appointed Staff Officer of the Ulster Transport Authority after its formation last autumn, was born in County Donegal. He joined the Great Northern Railway (Ireland) in 1921 in Belfast, and passed in turn through the Engineering and Stores Departments. In 1935, when the Northern Ireland road passenger and freight services of the G.N.R. were acquired by the Northern Ireland Road Transport Board, he was transferred to the latter body, and, after a short time, was appointed Staff Clerk. He was entrusted with the establishment and organisation of a central Staff Office, serving all the departments of the Board. In addition to his ordinary duties as head of the Staff Department, he also played a considerable part in the initiation of the pension and superannuation scheme introduced by the Board, as well as the admini-

Mr. F. E. Bogle

Appointed Staff Officer of the Ulster Transport Authority

Mr. J. L. Tregoning

Appointed Hotels Controller of the Ulster Transport Authority

Mr. R. L. Charlesworth

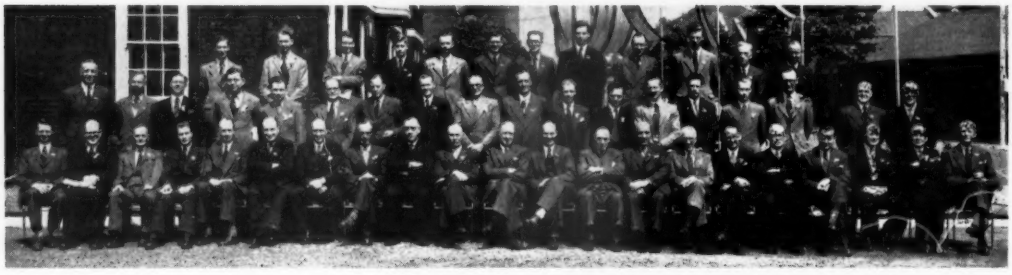
Appointed Steamship Superintendent, Belfast, for railway steamship services

stration of pension schemes taken over from the constituent concerns. Mr. Bogle also took an important part in the settlement of the various claims and matters discussed and arranged between the trade unions and the former Board.

Mr. J. L. Tregoning, M.B.E., who has been appointed Hotels Controller of the Ulster Transport Authority, in charge of its Hotels & Catering Department, was born in Carmarthenshire, of a Cornish family, and was educated at Harrow and at Witwatersrand University, Johannesburg. In 1933 he joined Trust Houses Limited, and spent three years receiving kitchen, cellar, bar, reception and general hotel training, after which he worked as an Assistant Manager and Relief Manager, before becoming an Assistant District Manager in 1937. He was promoted District Manager in 1938. In August, 1939, he left the company to join his unit as a Territorial officer. He served in the Hampshire Yeomanry Anti-Aircraft Regiment as a Battery Commander and Second-in-Command. He was mentioned in despatches in the North African Campaign, and was awarded the M.B.E. while serving in Italy. When the Yeomanry was reformed in May, 1947, he re-joined as a Battery Commander, and he was appointed to command the regiment in February, 1948. Having been wounded in April, 1945, he was unable to return to Trust Houses Limited, until July, 1946; he again served as District Manager until December, 1947, when he was appointed Assistant Houses Manager. He became Staff Manager in October, 1948, which position he held until his resignation this year to take up his present appointment with the U.T.A.

Mr. R. L. Charlesworth, O.B.E., M.A., A.M.Inst.T., who holds the position of Steamship Superintendent in Belfast in connection with the cross-channel services of British Railways, was born at Northampton, and was educated at Winchester and at Hertford College, Oxford. In 1933 he joined the L.M.S.R. as a traffic apprentice and received four years training. After two years as a runner, he was appointed Acting District Controller, Huddersfield, on the outbreak of war. He was commissioned in the Royal Engineers in January, 1940, and, after serving in France with 153 Railway Operating Company, he spent two-and-a-half years as a Staff Officer in the Middle East, and was mentioned in despatches in connection with the Western Desert campaign. In 1943 he was appointed D.A.D.Tn. (Railway Operating) at 21 Army Group headquarters, and subsequently served in France, Holland and Germany, being promoted A.D.Tn. in March, 1945. After D-Day he was for some time in command of No. 1 Regional Railway Control team at Osnabruck, with the acting rank of Colonel, and was awarded the O.B.E. for services in North-West Europe. On release from the Army Mr. Charlesworth was made Assistant District Goods & Passenger Manager, Bristol, L.M.S.R. and in 1947 was appointed to his present position in Belfast, where he acts in conjunction with the recently-formed Ulster Transport Authority, which now carries out the same functions in respect of the Railway Executive steamship services in Northern Ireland as were previously carried out by the L.M.S.R. Northern Counties Committee.

Metropolitan-Vickers Electrical Co. Ltd. Jubilee Celebrations



A group taken during a recent visit of press representatives to the Trafford Park works of the Metropolitan-Vickers Electrical Co. Ltd. in connection with its jubilee celebrations (*see also article on page* 24). *Included in the group are the following officers of the company: Mr. I. R. Cox, Managing Director; Mr. D. MacArthur, Director & General Sales Manager; Mr. E. W. Steele, Director & General Manager of Works; Mr. W. A. Coates, Director & Manager of Home Sales; Dr. C. Dannatt, Director & Chief Electrical Engineer; Lt.-Colonel K. G. Maxwell, Manager, Publicity Department*

The Minister of Transport has appointed Mr. N. L. C. Macaskie, K.C., to be Chairman of the Appeal Tribunal constituted under section 15 of the Road & Rail Traffic Act, 1933, in succession to Mr. Reginald Clark, K.C., who has resigned. Mr. Macaskie is at present Chief of the Legal Division, Control Commission for Germany (British Element), and has been Legal Adviser to the Military Governor since September, 1945.

ROAD HAULAGE LIAISON APPOINTMENTS

The following appointments have so far been made by the Road Haulage Association to the various bodies which are being set up under the road haulage liaison, to which reference was made in our May 20 issue:—

Road Haulage Liaison Conference: Messrs. B. G. Turner, National Chairman, R.H.A.; Frank F. Fowler; John Strang; H. Wilkinson; B. Winterbottom; R. Morton Mitchell, Chief Executive Officer, R.H.A.

Road Haulage Liaison Committee: Messrs. H. E. Brown; R. G. Crowther; R. H. Farmer; J. B. Mitchell; N. T. O'Reilly; C. W. H. Sparrow; J. Walker; R. Morton Mitchell.

New Vessel for Cross-Channel Service

(*Concluded from page* 12)

obtained by the choice of light coloured veneered panelling of walnut, birdseye maple and Carpathian ash, and tables and chairs are of beech, polished in natural colour. Upholstery is in leather of natural shade, piped with green. A service hatch and hot press at the after end is arranged to give quick service, which is essential on passages of short duration.

MAIN DECK

Twenty-four private cabins, each with lavatory, are arranged at the forward end of the main deck. Each cabin has Dunlopillo settees covered in cretonne loose covers, a table, mirror, Lloyd Loom armchair and a fitted Wilton carpet. The walls of all cabins are panelled, some being finished in pastel shades of grey, green, or cream, and others are finished with veneers. Each cabin has a small marquetry picture. Two cabins are fitted with doors of extra width to enable invalid chairs, or stretchers, to be taken in and out. Each cabin has a telephone for communication with the steward.

A ladies third class lounge is arranged at the port side of this deck abaft of midships, having square side windows and veneered panelling of chestnut, birch and ash. Furniture includes Dunlopillo settees covered with cretonne loose covers, together with chairs and small tables. A dressing table with triple mirrors is provided. At the starboard side of the ship there is a gentlemen's third class lounge, fitted out similarly to the ladies' lounge, but veneers are of makore and mahogany.

A bar and buffet is arranged aft, opening at the forward side to a third class smoke room, and at the after side to a third class general lounge. The third class smoke room is arranged with fixed settees, tables and chairs. The chairs are upholstered in leather and the room is panelled with veneers of figured mahogany and caterpillar mahogany. The third class general lounge is panelled out with veneers of oak and is furnished with fixed settees, tables and chairs. Settees and chairs are upholstered in leather with floor coverings and curtains to match.

At the port side forward there is a ladies' first class lounge panelled with veneers of figured ash and chestnut. Fixed settees covered with cretonne and tables and chairs form the furnishings. Opposite the ladies' lounge on the starboard side is a gentlemen's first class lounge, similarly fitted, but with veneers of figured olive ash and stripey olive ash. All public rooms are fitted with a luminous call-up system to summon attendance.

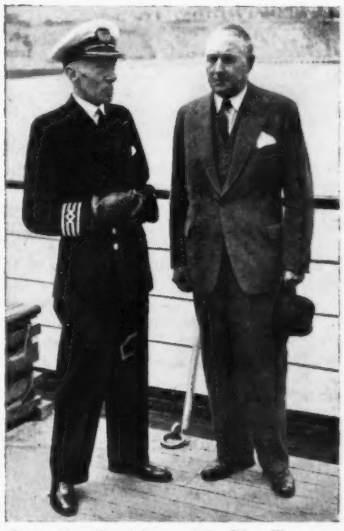
Mattresses in the cabins and officers' staterooms; the first class lounges on the lower deck; as well as the settee berths in the ladies and gentlemen's third class saloons on the main deck are of Dunlopillo latex foam cushioning.

INAUGURAL LUNCH

On Wednesday, June 22, an inaugural luncheon was held on board the new ship after members and officers of the British Transport Commission and Railway Executive had made an inspection of its facilities. Among those present were: Lord Rusholme, Member, British Transport Commission; Sir Eustace Missenden, Chairman, Railway Executive; General Sir Daril Watson, Member, Railway Executive; Messrs. R. M. T. Richards, Acting Chief Regional Officer, British Railways, Southern Region; H. A. Short, Acting Assistant Chief Regional Officer, British Railways, Southern Region; and the following officers of the Railway Executive: Messrs. E. G. Marsden, Secretary; H. L. Smedley, Legal Adviser and Solicitor; R. H. Hacker, Chief Officer (Continental); J. L. Harrington, Chief Officer (Administration); A. J. Pearson, Chief Officer (Administration); O. H. Corble, Chief Officer (Marine); D. S. M. Barrie, Public Relations Officer; and Mr. R. F. F. Edwards, Ministry of Transport. The chair at the luncheon was taken by Mr. R. M. T. Richards.

Sir Eustace Missenden, proposing the toast "The Ship and The Shore," said the thoughts of many people went back to the former s.s. *Maid of Orleans*, built in 1918, and a most popular ship with passengers in the cross-Channel service by the short sea routes. During the last war the ship had been chartered to the Ministry of Transport, but remained under railway management, with its railway master, officers and crew.

Under the command of Captain Larkins, the present Master, the *Maid of Orleans* had been engaged in the evacuation of Rotterdam, in the landing of reinforcements at the Hook of Holland and the subsequent evacuation; it had carried reinforcements for the garrison at Calais, and was eventually the last ship wearing the Red Ensign to leave Boulogne in May, 1940. Subsequently, it had taken part in the evacuation from Dunkirk, under the command of Captain Larkins and later Captain G. D. Walker.



Captain Larkins with Sir Eustace Missenden, on board the "Maid of Orleans"

Illuminated statuette on the new vessel

From 1941-44 it had been on various exercises and troop movements and then, under the command of Captain H. L. Payne, now Commodore of the Dover/Folkestone fleet, had taken part in the D-Day landing on June 6, 1944. Twenty-two days later, the ship was sunk off the Normandy beaches. When a new ship as replacement had been laid down for the trade between England and France, it had been thought fitting that it should bear the proud name of *Maid of Orleans*, and so, in September of 1948, Lady Missenden had launched the new ship from the same yard at Dumbarton, where the previous one had been built.

The new ship would be a worthy addition to the fleet of 130 ships controlled and managed by the Railway Executive under its powers of delegation. Despite high prices, the British Railways had built, since the end of the war, ten cross-Channel ships and four for coastal waters. Plans were complete for one new ship for the Southampton cross-Channel services and one being prepared for a large motorcar carrier for the short sea routes.

The following figures of the Anglo-French traffic were of interest:—

Complete Year	1948	1937
Passengers	1,117,631	1,511,221
Goods	39,087	29,825

The stimulation of the traffic surely was in conformity with the spirit of greater co-operation between the countries of Western Europe.

Alderman C. E. Lister, Mayor of Folkestone, and Mr. Springay, Purser, deputising for Captain Larkins, responded.

Accidents on Railways, 1948

Report by Lt.-Colonel Sir Alan Mount, Chief Inspecting Officer of Railways

The annual report* for 1948 of the Chief Inspecting Officer of Railways, Lt.-Colonel Sir Alan Mount, C.B., C.B.E., shows that train accidents during the year resulted in the deaths of 39 passengers, namely, 24 at Winsford, seven at Wath, five at Stockport, and one each at Woolwich, Kings Cross and Alloway. This compares with 93 deaths in 1947, and represents one fatality for every 42 million passenger journeys.

Passenger travel on British Railways, as represented by journeys at 1,002 millions, was about 7½ per cent. less than in 1947. Total passenger and freight train mileage at 364 millions was 14 millions more than in 1947, but about 53 millions less than in 1938. Freight tonnage at 275 millions remained at a high level, some 7 per cent. above 1947, and net ton-mileage was about 30 per cent. more than in 1938. Light merchandise, which requires the most handling, was also nearly 37 per cent. above 1938 in terms of net ton-mileage.

In movement accidents, other than train accidents, 48 passengers were killed as compared with 55 in 1947. Of this total, 38 lost their lives through falls from platforms and trains, and when entering or alighting from trains. The principal causes were misadventure and carelessness or misconduct on the part of passengers themselves.

Fatalities in all movement on rail, excluding trespassers and suicides, totalled 340, which was 69 less than in 1947, and compares with the pre-war averages of 338 and 308 for the periods 1935-39 and 1930-34, respectively. This reduction was mainly due to fewer deaths of passengers in train accidents and of railway servants in movement accidents.

Deaths among railway servants in all movement on rail numbered 191 and injuries 2,678, neither figure greatly exceeding the averages for the periods 1935-39 and 1930-34. There were 125 deaths while working, walking, or standing on the permanent way on duty, seven fewer than in 1947; the averages for the periods 1935-39 and 1930-34 were 114 and 116 respectively.

Failure of the Human Element

In all, 1,293 train accidents were reported in 1948, compared with the average of 745 for 1935-39, and 27 of them had fatal results, the most for many years. The causes are analysed as follows:—Failure of the human element, 639; defective apparatus, 188; and other causes (such as running into snow or animals on the line, and the misconduct of passengers and other persons) 466. The figures show a continued increase since 1946 in accidents due to human failure in various ways.

The Chief Inspecting Officer considers that 54 deaths out of 74 in train accidents might have been avoided by greater care on the part of the railway staff immediately concerned. The other 20 fatalities occurred at level crossings where users themselves were primarily responsible. As regards movement accidents, failure of the human element was also responsible for the great majority of the fatalities among railway servants. Under non-movement accidents reference is made to the incidence of casualty due to contact with the live rail on electrified lines, and particularly to the protective measures adopted by the Railway and London Transport Executives to prevent trespass, especially by young children.

Various specific accidents caused by failure of the human element are referred to, and the collision at Winsford is quoted as a rare example of inexcusable breakdown in operation, due to non-observance of block working discipline on the part of a signalman. The liability to human failure, however, has been recognised by the decision of the Railway Executive to standardise an additional block control. This is only one feature of a programme of preventive measures to be spread over several years.

The report refers to investigations carried out during the year with automatic train control equipment, and states that the Railway Executive is now arranging for an extended trial between New Barnet and Huntingdon. For this, 65 engines will be fitted with equipment of non-contact type incorporatnig the former G.W.R. bell, siren, and brake-actuating cab apparatus, operated by a magnetic inductive receiver passing over magnets on the track.

The Chief Inspecting Officer deals with other aspects of operation which have a bearing on the incidence of accident. He records marked improvement in locomotive reliability as compared with 1947, the number of engines out of service for repair having fallen by nearly 600. As a result, also, of expediting repairs and scrapping, the wagon position continued to improve, and, at the time of reporting, the number of vehicles under and awaiting repairs (just over 100,000) was less than half what it was 18 months before.

The biggest problem, however, is the shortage of coaching stock. In 1948, heavy loading of main-line and some suburban services continued, and passengers still suffered much inconvenience and lack of reasonable comfort. The improved repair position, for which all concerned deserve credit, increased the number of vehicles available for traffic by over 2,200; but more than 20 per cent. of the stock of 55,500 is at least 35 years old, and coaches which would normally have been condemned had to be kept in service by heavy and uneconomic repairs. Renewals totalled only 1,334 vehicles during 1948, but 1,540 had to be withdrawn, including 67 damaged beyond repair in accidents. A noteworthy feature is that the new stock is of stronger construction in resistance to shock, and, as it goes into service, this tends to reduce the incidence of casualty in the event of accident.

As regards the permanent way, the report states than one of the major problems which faced engineers during 1948 was shortage of manpower, owing to the difficulty of obtaining and retaining men of the right type; but increased use was made of mechanical appliances to offset labour shortage and to speed the work of renewals. Further deterioration of the track has now been arrested, and every effort is being made to restore conditions to pre-war standards. However, speed restrictions due to arrears of track maintenance and renewals, remain one of the chief hindrances, and their number is still 25 per cent. higher than pre-war. Improvement is largely governed by the supply of materials, and concern is expressed at the possibility of a shortage of timber sleepers again causing an increase in restrictions and retarding recovery.

The report refers to the effect of climatic conditions on safety: first, to the five derailments in May and July due to track distortion in hot weather; secondly, to the severe storms in Scotland in August; and thirdly, to widespread fog, when three collisions occurred on the same day in November.

Attention is drawn to the fact that the jurisdiction of the Minister of Transport as regards safety has not altered as the result of nationalisation of the railways, and that the duties, responsibilities, and independence of the Inspectorate remain unchanged. A brief résumé is given of the regulatory procedure with reference to the various Acts and Orders under which this aspect of the Ministry's functions are carried out.

The report states that operating conditions in the first year of nationalisation were far from easy, but that unification assisted in the consideration of several problems. Although rehabilitation and modernisation were retarded by insufficiency of materials, particularly steel, considerable efforts were made during the year towards a return to pre-war standards.

The Chief Inspecting Officer refers particularly to the large number of fatal train accidents and to the fatalities among railwaymen. He points out that there must be further improvement if the pre-war reputation of the railways for safety of operation is to be maintained. He considers that a good safety record is valid proof of good operation, and with leadership from the top downwards, the highest standards could be maintained in many directions. He states that while the fair administration of disciplinary measures cannot be over-rated in the promotion of safety, a pat on the back and encouragement in many cases may produce at least equal results.

The Railway Executive is devoting increasing attention to education, but it may be that further improvement as regards safety work can be achieved by arrangements aiming at the integration and expansion of existing Regional endeavours in this respect. It is, however, emphasised that progress depends on esprit de corps and on everyone's individual efforts.

The Chief Inspecting Officer has no doubt about the capacity of the railways to overcome the difficulties which still face them, and concludes by stating that there is nothing like all-round increase in speed, fewer failures and better time-keeping, clean rolling stock and stations, with courteous and disciplined staff, to improve morale, efficiency, and safety.

The report contains a number of summarised tables which cover the past 34 years and give the total casualties in all movement on rail, with information about traffic carried, staff employed, etc.

* H.M. Stationery Office. Price 1s. 3d.

British Standards Institution Annual General Meeting.—The annual general meeting of the British Standards Institution will be held on July 27 at 3 p.m. in the Council Room of the Institution (first floor), 24, Victoria Street, London, S.W.1.

Control of Iron and Steel.—The Minister of Supply has made the Control of Iron & Steel (No. 72), Order, 1949, which came into operation on June 28, and increases the maximum prices of spiegeleisen and rainwater and soil goods. Copies of the Order may be obtained from H.M. Stationery Office or through any bookseller.

British Automatic Co. Ltd.

The annual general meeting of the British Automatic Co. Ltd. was held at Winchester House, Old Broad Street, London, E.C., on June 23. Mr. T. M. Till, O.B.E., F.C.A., Deputy Chairman and Deputy Managing Director, presided, Major R. D. K. Curling, M.C., Chairman & Managing Director, being absent with a bad leg.

The Secretary, Mr. Ivan B. Lindley, read the notice convening the meeting.

The Chairman, in a statement issued with the report and accounts, said: Our trading results for 1948 were, under all the circumstances, very satisfactory, but before I report on them in detail, you will want me to tell you about the present position regarding our vending machines.

Confectionery was de-rationed on April 24 this year, but, despite our very vigorous representations, the Ministry of Food refuses to renew our licences to resume the trade we were forced to abandon when rationing was introduced in 1942, until it is satisfied that rationing will not have to be re-imposed.

A comprehensive contract has been negotiated with the main-line railways, and we are ready to resume our old-established automatic vending machine service to the travelling public when we are permitted to do so, which we hope will be soon. New machines will be introduced later, after permission to manufacture is received. As soon as circumstances permit, we shall reinstate that section of our business on which our reputation was founded.

Turning to last year's results, I am pleased to report that the receipts from our weighing machines created a new record, exceeding the previous year's figures by over 20 per cent.; that is to say, for every five persons who used our machines in 1947, there were six wise people who weighed themselves in 1948. The amusement machine department, too, which has to face considerable healthy competition, also showed a marked improvement. A vigorous programme of modernisation in both these sections of the business is progressing as speedily as the controls on supplies of materials, labour, etc., will permit.

Our retail confectionery and tobacco shops have shown quite satisfactory results despite the reduced consumer rations and increased wages. Provided the authorities do not again reduce the trade margin of profit, the de-rationing of confectionery at a 4¼ oz. level of supply should maintain our profits from this section of the business. As explained in the report, the profit from Reeves Limited has been lower, owing to reduced output, consequent on the reduction in consumer rations.

For some years we have submitted group or consolidated accounts, and this has now become compulsory under the 1948 Companies Act. As it is no longer necessary, however, to submit separate profit and loss accounts, we have produced a consolidated profit and loss and appropriation account, which in my opinion gives a clearer picture of the group. References to figures, therefore, will be to those appearing in the consolidated accounts.

In accordance with my usual practice, I will refer only to those items where there has been any significant change during the year. The net outlay on plant and machinery, etc., during the year was £24,224, over half of which was for new manufacturing plant for Reeves Limited factory in Glasgow. The values of leasehold premises and goodwill of shops are now shown separately on the balance sheet. To do this, it has been necessary to apportion a sum of £9,225, and this has been done equally between the two. To the written-down goodwill figure of £57,821 has been added £21,849 representing the net excess of share values in subsidiary companies over the book value of net assets at date of acquisition.

Stocks increased by £46,493 to £158,763 owing to increased prices, more selling points requiring stocks, and reserves at Reeves Limited factory held to the order of the Ministry of Food. Cash at bankers and British Government Securities and other investments have together been reduced by £88,670 to £178,156, and this is mainly due to the money required for increased stocks referred to, and to the reduction of current liabilities by £42,724 to £232,879. Net profit from trading and other receipts amounting to £123,059, is less by £11,275, but a reduction of £8,490 in taxation and £31 in sundry other items, has resulted in the net profit declining by £2,754 to £23,918.

These results could only have been obtained by the efficiency, hard work, and loyalty of our managers and staff, and so it gives me very great pleasure to express to them our sincere appreciation. I also have much pleasure in thanking my colleagues on the board for the loyal support and assistance they have given me during the year. The report and accounts were adopted and the proposed dividend approved.

Vulcan Foundry Limited

The annual general meeting of the Vulcan Foundry Limited was held in London on June 3, when Mr. F. G. Whalley, Chairman & Managing Director, said that the balance sheet for the year under review showed work in progress to have increased from £622,900 to £1,075,844, which was due mainly to approaching completion at the end of last year of several large contracts. These figures also reflected the high level of costs.

Debtors and payments in advance had risen from £367,892 to £407,291. These figures for work in progress and debtors included substantial amounts attributable to work for Argentina. Corresponding figures in the consolidated balance sheet were accentuated because our subsidiary was affected in a similar way.

The position in regard to the Vulcan Foundry Limited was that on a recently completed contract for 30 locomotives for Argentina, which, at December 31, 1948, appeared partly in work in progress and partly in debtors, they had not yet received any payment, and the total amount involved was considerable, being about £600,000.

They had made, and continued to make, every effort to obtain a settlement of this debt at the earliest possible moment. Apart from this actual debt on a completed contract, the uncompleted work in progress on other contracts for Argentina amounted at March 31, 1949, to about £368,000. The position outlined above was responsible for the size of the bank overdraft notwithstanding the realisation of investments.

Larger Net Profit

Turning to the profit and loss account for the Vulcan Foundry Limited, the net result showed an increase of £14,852 in spite of a slight reduction in manufacturing profit. This increase was due to the lower charge for taxation in 1948 compared with 1947.

The year under review had again been a difficult one. Continued shortages of skilled labour and erratic deliveries of materials, with the added difficulty of completing locomotives that had been on the books for a number of years but were held up by the war, had made it impossible to obtain the best possible output. There had, however, been signs of improvement in deliveries of materials, which it was hoped would continue.

With regard to the future, their order book remained satisfactory despite certain cancellations and alterations which had taken place during the year, and should continue to provide work for a considerable time to come. There were, however, indications that the demand for new locomotives was falling, and that the industry would be faced with keen competition which was not restricted to this country. The necessity of reducing selling prices to a minimum was well understood in an industry that depended for its very existence on ability to compete in world markets.

To ensure efficient production, they had continued their policy of steadily installing the latest machinery. The cost of replacement today, however, was considerably greater than the original cost, which must be met out of undistributed profits. Their new laboratory and test house and metallurgical staff were making a useful contribution to efficiency in the works.

He had indicated the probable restriction of markets for the locomotive industry in the future and hence the necessity of looking further afield for locomotive orders. To this end they had appointed one of their senior staff as an overseas representative.

In one of his latest pronouncements, the Chancellor of the Exchequer had said that "one of the reasons prices are so high is because profits have been so frightfully high." He would therefore quote figures, as he had done last year, to show the incidence of profits in the cost of production. On figures for the year the expenditure of every £1 of sales was made up as follows:—Wages and salaries, including National Insurance, 7s. 0½d.; materials, including coal, gas, and miscellaneous expenses, 11s. 3d.; taxation, 5½d. There was retained in the business 7d., and there was paid out in dividends 6½d., and in directors' emoluments 2d.

The effect of the recent increase in steel prices on the total cost of a locomotive today had in itself been sufficient to raise fear as to the adverse effect nationalisation of the steel industry might have on their competitive power.

He had mentioned last year that opportunity had been taken to make certain rearrangements of the management staff, to spread responsibility and provide a flexible organisation that could readily adapt itself to the changing needs of the present time. It gave him pleasure to record the success of this rearrangement and the confidence the board felt in Mr. G. Collingwood, Joint Managing Director, and his energetic team at the works, who played such an important part in the interests of the company.

The report and accounts were adopted.

The Jubilee of Metropolitan-Vickers

Fifty years of growth and development of a world-famous electrical engineering enterprise

One of the events of the jubilee commemoration of the Metropolitan-Vickers Electrical Co. Ltd. last week was a visit of press representatives to the Trafford Park works on June 22. The programme included tours of the various departments with an exhibition of some recent products. Among the directors and senior staff present were Messrs. I. R. Cox, Managing Director, W. A. Coates, Director & Home Sales Manager, D. MacArthur, Director & General Sales Manager, and E. W. Steele, Director & General Manager of Works.

Mr. Coates, who presided at luncheon, welcomed the guests and stressed the interdependence of industry and the technical press. He spoke of the days when he joined the firm forty years ago and the financial situation was precarious. Since then they had forged ahead: the area of their Trafford Park works alone had increased fourfold. He had seen Metrovick develop into a vast organisation, with its wide foreign and overseas connections, leading the way in manifold activities of electrical manufacture, whether in research, or quality of production, or even in the record size or bulk of some new product necessitated by modern conditions.

Metrovick was more than a business enterprise. It was proud of its educational schemes, in which it was a pioneer in the industrial world, and of its tradition that the executive direction of the company was in the hands of men who had worked their way up in its service. Mr. Coates said that some two-thirds of the executives were former apprentices of the company, and hoped that the proportion would rise.

The British Westinghouse Electric & Manufacturing Co. Ltd. was formed on July 10, 1899, and shortly afterwards building of a factory began in the then open country of Trafford Park, near Manchester. The new undertaking produced a wide range of products for the electrical industry, which was expanding at that time; it included electrical generating and transmision plant, plant for railway, tramway and industrial electrification, and a variety of electrical instruments.

The company had the benefit of the experience of its parent Westinghouse Company of America, but considerable adaptation was necessary for its application in Great Britain, and competition was severe. During the first decade survival at times seemed doubtful, but by 1917, the company, by this time British in fact as well as in name, had established a sound reputation. In 1919, during a brief association with the Metropolitan Carriage Wagon & Finance Co. Ltd. and Vickers Limited, the present name of Metropolitan-Vickers Electrical Co. Ltd. was adopted, without important change in the organisation and without break in continuity of traditions or progress. In 1929 Associated Electrical Industries was formed, bringing together the activities of Metropolitan-Vickers, the British Thomson-Houston Co. Ltd., Ferguson, Pailin Limited, and the Edison-Swan Electrical Co. Ltd., with subsequent addition of some subsidiaries, for the general purposes of exchange of information and combination of resources.

The first radar transmitters ever commercially manufactured were the work of Metropolitan-Vickers, for a chain of aircraft detector stations around the coast, which played an important part in the Battle of Britain. From this developed large-scale wartime production of radar equipment, the total value of which exceeded £10,000,000. The most extensive enterprise, and the least akin to the company's normal products, was the production of heavy bomber aircraft, including the four-engine "Lancaster" of which more than 1,000 were built. Wartime activities necessitated construction of a new factory in the neighbourhood of the existing Trafford Park works, with bays 100 ft. wide for the aircraft assembly; it was eventually trebled in area, giving a total floor area of 800,000 sq. ft. to meet the demand for 30 bomber aircraft a month. Although the company's works suffered heavy bomb damage, production was maintained.

The new factory has been turned over to peacetime production, mainly of industrial motors. Works in the Trafford Park area together now cover 148 acres and employ some 19,500 of the firm's 23,000 workers. Other plants are situated at Attercliffe, Sheffield (traction equipment), at Stockton (steel products), and at Bury and Motherwell (instruments and meters).

Traction Equipment

The most outstanding example of railway traction equipment on view was the gas turbine for the experimental 2,500-h.p. gas turbine-electric locomotive ordered in 1946 by the former Great Western Railway and described in our issues of January 24, 1947, and January 14, 1949. The gas turbine is of the open-cycle type, the four events of the heat cycle—compression, heating, expansion, and cooling—proceeding simultaneously and continuously. The entire locomotive is under construction at Trafford Park works. Developing a maximum tractive effort of 60,000 lb., it has been ordered for the purpose of hauling express passenger trains of up to 650 tons over the main lines of what is now the Western Region, with possible maximum speeds of 90 m.p.h. Other electric traction equipment displayed included traction control gear for railways and trolley-buses, and pantographs for the Netherlands and South African (Rand) Railways electrification projects.

In the large electrical aisle are manufactured some of the largest units, such as slow-speed generators for hydro-electric installations, with a diameter of 34 ft.; here was made the generator for the largest power unit in Europe, the 105,000 kW set installed in the Battersea Power Station; also the first British hydrogen-cooled generator, with a capacity of 75,000 KVA. To handle the heavy loads, the aisle is equipped with 70-ton overhead travelling cranes, two of which can be used together for 140-ton lifts. In the middle of the aisle is the test area. Other products of this shop are synchronous condensers, motor convertors, and a.c. and d.c. motors, mining winders and rolling mill motors. Visitors were shown steam turbines in various stages of completion in the mechanical aisle. An enclosed section maintains even temperatures essential for the high degree of accuracy essential in the production of precision gears. The transformer shop includes the production of apparatus for changing the voltage ratio whilst the transformer is still in circuit. This shop recently produced a bank of transformers for 100 MVA 220/150/10·5 kV for linking the Netherlands Grid to the Ruhr network.

The mechanised foundry is one of the largest in Great Britain. Mechanised gear includes power-driven moulding machines with sand-conveying plant, and vibrators for emptying sand from moulds. High-pressure water plant is used for washing the sand from castings. Two shops are devoted to welding, largely by the use of the electric arc, in which Metropolitan-Vickers is a pioneer, much of the apparatus having been built in another part of the works. An interesting feature is the manipulators, in which the job is held and can be turned into the most convenient position. Welded products include steel turbine casings, transformer tanks, and stator casings for hydro-electric generators.

The Research Laboratories are too big to have allowed of detailed inspection by visitors, but certain representative work was exhibited in the Research Hall. One of the most spectacular exhibits was the Metrovick Type EM3 100-kV electron microscope, giving a magnification of up to 100,000 dia. Other specimens were flaw-detector equipment for ferrous and non-ferrous metals, and apparatus for sound measurements of frequencies up to 20,000 cycles. Visitors were given a demonstration of "artificial lighting" in the high-voltage laboratory, with its 2,000,000 volt impulse generator and 1,000,000 volt 50-cycle set.

G.E.C. Research Laboratories

The Research Laboratories of the General Electric Co. Ltd., at Wembley, held a conversazione during the afternoons of June 21, 22 and 23, to which 3,000 representatives of industry, the universities, and research establishments were invited. On the morning of June 22, many representatives of the national, commercial, and daily Press were invited to a special visit of the laboratories.

The party assembled at Magnet House, Kingsway, whence motor coaches took the members to the laboratories, where they were received by Mr. Leslie Gamage, Vice-Chairman of the company, and Mr. O. W. Humphreys, Manager, Research Laboratories.

Members of the Research Staff conducted the visitors on a tour of inspection of the laboratories lasting some two hours. The activities inspected included: fluorescence and fluorescent lamp production; synthetic sapphire manufacture; metallurgy; diamond die-making for wire drawing; glass blowing; pulse communication; and molecular resonance at millimetre wavelengths.

At a luncheon held at the Rest Hotel, Kenton, an address was given by Sir Harry Railing, Chairman of the General Electric Co. Ltd. He outlined the origin and growth of the laboratories, which were opened in February, 1923, as the first research department of an industrial organisation in this country, and mentioned some of its notable developments, such as the fluorescent lamp, which the company pioneered, and valves for radar.

He revealed that £1,000,000 were spent annually on research in the laboratories, but that there was no material overlap of their work with that of other organisations. The total research staff numbered approximately 1,400, and one-third of the work done was for the Government. Mr. H. S. Pocock, Managing Director, *Electrical Review*, responded.

Permanent Way Institution Convention in Dublin

Programme of technical and social visits

The annual summer convention of the Permanent Way Institution was held this year in Dublin, from June 17 to 21, under the presidency of Mr. J. Taylor Thompson, M.C., M.I.C.E., Civil Engineer, North Eastern Region. Some 200 members from all parts of Great Britain and Ireland were present at the annual summer general meeting, held at the Mansion House, Dublin, on June 17.

The reports furnished by the Hon. Secretary and the Hon. Treasurer on the activities of the past six months disclosed that the number of new members enrolled was 337, and that there were 43 transfers to higher grades of membership. Progress had been maintained by the resuscitation of the sections at Hull and Perth. Overseas activities included the establishment of a Western Pakistan Section. It was hoped to revive the Malayan Section next year, and the formation of a section for Eastern Pakistan was under consideration. The general financial position remained satisfactory, although, as forecast last year, it had been necessary to increase the subscription rates for some grades of membership as from January 1, 1949.

The business agenda of the general meeting was followed by a paper on "Differences between British and Irish Permanent Way," by Mr. A. M. Plumer, Chairman of the Irish Section.

Annual Summer Dinner

The annual summer dinner was held the same evening at Mosney Holiday Village, Co. Meath, by permission of Butlins Limited. The President took the Chair, and some 270 members, ladies and guests, attended. Among the guests were Mr. Liam Cosgrave, Parliamentary Secretary, Ministry of Industry & Commerce, and the Lord Mayor of Dublin, Councillor John Breen.

The toast of "Ireland" was proposed by Mr. R. Carpmael, and Mr. Cosgrave responded. In giving the toast of the Permanent Way Institution, the Lord Mayor welcomed the members to Dublin, and expressed the hope that the city would soon be chosen again as the headquarters for the summer convention. He praised the work of the Institution, and emphasised the vital part played by railways in the economy of a country. The President thanked Mr. Cosgrave and the Lord Mayor for their welcome, and said that it gave the members of the Institution great pleasure to come to Dublin. The Irish Section of the Institution was flourishing, and it was due to the efforts of its members that this year's convention was being held in Dublin. He was sure that the visitors would spend a most enjoyable time. The toast of "The Guests" was proposed by Mr. Plumer, and responded to by Mr. G. B. Howden, General Manager, Great Northern Railway (Ireland).

On Saturday, June 18, a motor coach tour was arranged through Co. Wicklow. The outward route passed through Bray, and Rathdrum to Avoca, and Glendalough, Roundwood, and Enniskerry were visited on the return journey. An alternative to this trip was a conducted tour of Dublin, with visits to the Bank of Ireland, Trinity College, Christ Church Cathedral, and St. Patrick's Cathedral.

A short tour of the Boyne Valley, with visits to the famous Stone Age tumuli of Dowth and Newgrange was arranged for Sunday afternoon.

The programme for Monday included visits to the Boyne viaduct, and the works of Cement Limited, at Drogheda, Inchicore Locomotive Works, C.I.E., Guinness' Brewery, and Dublin docks and airport. At 7.30 p.m. the visitors were accorded a civic reception at the Mansion House, Dublin, by the Lord Mayor, who extended an official welcome on behalf of the city. The President responded for the visitors. The remainder of the evening was devoted to the exhibition of a film of the activities of the Permanent Way Institution, and a musical programme arranged by members of the Irish Section.

On Tuesday, an all-day visit was paid to Portarlington, to inspect the turf-fired electricity generating station, now nearing completion. It is planned to set up a chain of these generating stations, and the first, at Portarlington, is expected to be in operation this summer. To supplement the supply of water from the River Cushina for the cooling plant, a reinforced concrete tower, 234 ft. high, has been erected. The largest mechanical turf cutting plant yet constructed has been installed in the adjoining Bog of Clonsast. It has six cutters, and the turf is handled and spread mechanically. It is expected that the capacity of the plant will be 120,000 tons a year.

The convention ended on Wednesday, June 22, with a trip to Belfast, for a visit to the loop line at Greenisland, opened in 1934, to enable trains to run between Belfast and Londonderry without reversing. The layout includes power-operated points, and colour-light signalling. Alternative visits had been arranged to Harland & Wolff's Shipyards, Inglis's Bakery, and Lamont's Linen Wareroom. For members who did not participate in the trip to Belfast, a visit was arranged to Poulaphouca, Co. Wicklow, where the River Liffey has been impounded to form a reservoir for the Dublin Corporation, and to drive a hydro-electric generating plant for the Electricity Supply Board. A comparatively small dam across a deep, but narrow valley has created a new and beautiful lake, many miles in extent.

It was announced at the general meeting that the 1950 convention is to be held in Sheffield.

Parliamentary Notes

Mersey Tunnel Bill

The Mersey Tunnel Bill, as amended, passed the report stage in the House of Commons on June 22.

British Transport Commission Bill

The British Transport Commission Bill was read a second time in the House of Lords on June 23.

Questions in Parliament

Transport Commission Accounts

Mr. Christopher Hollis (Devizes—C.) on June 27 asked the Minister of Transport when the 1948 accounts of British Railways would be published.

Mr. Alfred Barnes (Minister of Transport): I am informed that the first annual statement of accounts of the British Transport Commission is nearing completion, and I hope to make final arrangements for the presentation of the annual report and accounts to the House before the summer recess, and to publish them by the end of August.

Acquisition of Road Undertakings

Mr. W. McAdam (Salford North—Lab.) on June 27 asked the Minister of Transport what progress was being made in the taking over of goods road transport undertakings by the B.T.C.

Mr. Alfred Barnes: The negotiations for the acquisition of road haulage undertakings by voluntary agreement are now practically concluded, and the Commission informs me that the position at June 1, 1949, was that 359 undertakings with about 15,000 vehicles had been thus acquired. The process of compulsory acquisition is well in train, and some 1,300 notices have been served. At June 1, 346 undertakings with 6,500 vehicles had been compulsorily acquired.

African Railway Links

Mr. Walter Fletcher (Bury—C.) on June 22 asked the Secretary of State for the Colonies what steps had been taken to survey a link between the Central and East African railway systems; and when he anticipated that construction of that link would be begun.

Mr. A. Creech Jones (Secretary of State for the Colonies) in a written answer stated: It is hoped to make a start with the surveys next month. Decisions in regard to construction must await the surveys.

Staff & Labour Matters

Lodging Turns Dispute

The resumption of normal Sunday working by train crews in the Eastern, North-Eastern, and Scottish Regions of British Railways has cleared the way for the resumption of negotiations on lodging turns. A meeting was held at Railway Executive headquarters on June 22 between representatives of the Railway Executive and representatives of the N.U.R. and A.S.L.E. & F. Some progress was made.

Wages Claim

At a conference of railway shopmen at Southport on June 20 the following resolution was passed:—

"That this conference of railway shopmen, representing 80,000 members, having heard the report of the offer of the Railway Executive to our claim for an increase of 10s. a week to all railwaymen, emphatically endorses the action of the special general meeting of the N.U.R. in rejecting this insult.

"This conference calls for the institution of the 44-hr. week, go-slow, and working-to-rule methods if success is not achieved on our claim by June 28. We congratulate our general secretary and national executive committee on the manner they have conducted negotiations."

At the resumed discussions on the wages claim which took place on June 3 and 20, the Confederation of Shipbuilding and Engineering Unions was represented for the first time. The Confederation includes unions of which certain railway shop staff are members, but it was not a party to the present claim, or to the previous claim for a flat-rate increase of 12s. 6d. a week which was rejected by the Railway Staff National Tribunal.

Other railway shopmen are members of the N.U.R. For the purposes of negotiation members of the N.U.R., and shopmen coming under the jurisdiction of the Confederation, are linked together under the Railway Shopmen's National Council.

Negotiations on the claim continued on June 23, when representatives of the Railway Executive met representatives of the N.U.R., A.S.L.E. & F., R.C.A., and employees' side of the Railway Shopmen's National Council. At the meeting, which lasted three hours, the Railway Executive made an amended offer to the unions, and the meeting was adjourned until June 30 to enable the union representatives to consult their respective executive committees.

In last week's issue we recorded a resolution of the N.U.R. delegate conference held on June 17, part of which read:—

"We instruct our national executive committee to continue negotiations on the basis of our original claims, at the same time pressing for an early settlement, the results of these negotiations to be reported back on June 28. With this object in view special branch meetings of the N.U.R. were held throughout the country on Sunday, June 26. Some of the decisions reached and which will be reported to the special delegate conference were: Acton and Manchester No. 13 branch rejected the offer; Middlesbrough delegates authorised to vote against acceptance; and Carlisle decided against acceptance and decided to adopt go-slow tactics."

Discussions with the London Transport Executive in connection with the similar wage claim, submitted by the N.U.R., were also resumed on June 23. Representatives of the N.U.R., R.C.A., and A.S.L.E. & F. were present, and the meeting was adjourned to afford the union representatives an opportunity of consulting their executive committees on the next stage of the negotiations.

The N.U.R. Delegate Conference, at its resumed meeting on June 28, discussed the Railway Executive's improved offer in connection with the rates of pay of certain lower-paid workers. The conference rejected the offer by a big majority and in addition decided to start working the 44-hr. week strictly to rule. Union representatives reported this resolution to the meeting with representatives of the Railway Executive on Thursday, June 30.

If work-to-rule tactics are adopted it will be the first time they have been introduced by the men on a national scale. Go-slow methods were recently adopted by staff at several depots in protest at the delay in reaching a decision with the wage claim but, as a result of an appeal by union representatives, the men decided to resume normal working and allow the union to handle their case.

The N.U.R. Delegate Conference passed the following resolution:—

"That, having heard the report of the general secretary and having given consideration to the offers made by the various Executives, this special general meeting rejects such offers as totally inadequate.

"We therefore decide to instruct the general secretary and the national executive committee to inform the Executives concerned, and also the Minister of Labour, that all our members will be called on to cease working any tonnage, bonus or piece-work schemes, and work strictly to rules and the 44-hr. week, until such time as our just demands are met, from Sunday midnight, July 3-4."

EYEMOUTH BRANCH REOPENED.—Closed since August, 1948, when floods caused serious disruption to communications in Scotland, the Eyemouth Branch was reopened to traffic on Wednesday, June 29. Repair of the viaduct across Eye Water, one of the piers of which was washed away, has now been completed.

Notes and News

Quantity Surveyor Required.—A quantity surveyor, not less than 30 years of age, is required in the drawing office of a civil engineer in London. See Official Notices on page 27.

Designer Draughtsman Required.—A designer draughtsman, not less than 30 years of age, is required in the drawing office of a civil engineer in London. See Official Notices on page 27.

Traffic Inspector, Grade II, Required.—Applications from qualified candidates are invited for the post of traffic inspector, grade II, not over 35 years of age, required by the East African Railways & Harbours Administration, for one tour of 40 to 48 months, with prospects of permanency. See Official Notices on page 27.

Drumm Battery System Scrapped.—Coras Iompair Eireann has decided to convert its remaining two Drumm battery trains to ordinary passenger coaches and presumably will still run them in the Dublin district, but as steam stock. The sub-station and other ancillary equipment will be sold. After experiments, the Great Southern Railways of Ireland decided in 1930-31 to replace steam suburban trains between Dublin and Bray by two-car articulated sets operated by storage batteries of the type invented by Dr. Drumm, and four were built. The first went into service on February 12, 1932, and was described in detail in our issue of March 11, 1932. An article on the Drumm system with reference to its suitability to Irish conditions appeared in our February 19 issue of that year. It was thought that Ireland offered a hopeful field for battery traction, but the subsequent spread of railway-associated bus services and the development of diesel railcars were a brake on its further development. Because of their relatively low power, the Drumm trains could not cope adequately with the rush hour traffic and were relegated to mid-morning and afternoon trips between Harcourt Street and Bray. Coras Iompair Eireann states that, although the results hoped for have not been fully achieved, the experiment has been considered well worth while. The Drumm is the third mode of traction to have been adopted on the south-east Dublin suburban lines, for the Kingstown & Dalkey line was worked on the atmospheric principle between 1846 and 1856.

Draughtsman, Grade II, Required.—Applications are invited from qualified candidates, between the ages of 22 and 25 years, for the post of draughtsman, grade II, required by the East African Railways & Harbours Administration, for one tour of 40 to 48 months in the first instance. See Official Notices on page 27.

Clerks, Grade II, Required.—Applications are invited from qualified candidates, not over 30 years of age, for the posts of grade II clerks required by the East African Railways & Harbours Administration for the transportation department, for one tour of 40 to 48 months, with prospects of permanency. See Official Notices on page 27.

East Coast Express Damaged by Fire.—The last two coaches of the 7.30 p.m. Edinburgh-Kings Cross train were severely damaged by fire on the night of June 23. The outbreak was discovered near Penmanshiel Tunnel, between Cockburnspath and Grantshouse, Berwickshire, and when the train was brought to a standstill by the guard, part of it was inside the tunnel. A number of passengers were injured and much of the mail destroyed. After firemen had subdued the flames the damaged coaches were uncoupled and the remainder of the train went on to London. Both lines were blocked for a short time and trains were being diverted *via* Kelso and Galashiels.

Berlin Strike Ends.—After strong action by the Commandants of the three Western sectors of Berlin, the West Berlin railway strikers resumed work at 8 a.m. on June 28. The Commandants have done their best to satisfy the strikers' right to be paid their full wages in Western currency; during the next three months the Magistrat is to convert into Western marks at the rate of one for one the 40 per cent. of the men's wages which the Soviet-controlled railway directorate still

Crewe Divisional Control Room, L.M.R.

Interior of the new divisional control room at Crewe, L.M.R. (see last week's issue)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following posts:—

CLERKS, GRADE II, required by the East African Railways and Harbours Administration for the Transportation Department, for one tour of 40-48 months, with prospects of permanency. Salary according to age, qualifications and experience in the scale £462 by £18 to £570 a year. Free quarters and passages and liberal leave on full salary. Superannuation fund. Outfit allowance £30. Candidates, not over 30 years, must have received a good general education up to Matriculation or School Certificate standard, and should have a good working knowledge of one or more branches of railway traffic working. A knowledge of both commercial and operating work would be an advantage and candidates who have qualified by examination in one or more railway subjects will be preferred. There is a good prospect of promotion with the possibility of eventual senior appointment in the Administration for those who show themselves suitable. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/21465 (3E) on both letter and envelope.

LONDON Civil Engineer's Drawing Office. Required, Quantity Surveyor, age not less than 30 years, capable of writing specifications, mainly for Civil Engineering works, but including some Architectural items. Salary 12-15 gns. per week.—Box 381, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

TRAFFIC INSPECTOR, Grade II, required by the East African Railways and Harbours Administration for the Transportation Department for one tour of 40 to 48 months with prospects of permanency. Commencing salary according to age, qualifications and experience in the scale £590 rising to £690 a year. Free quarters and passages. Superannuation fund. Liberal leave on full salary. Candidates, preferably not over 35 years of age, must have received a good general education up to Matriculation or School Certificate standard and should have had a thorough all-round experience in all branches of railway operating and traffic working, including the commercial aspect. Preference will be given to candidates who have had some experience of road services, as the selected candidate will be concerned particularly with the operation of road vehicles. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/22637/3E on both letter and envelope.

LONDON Civil Engineer's Drawing Office. Required, Designer Draughtsman, age not less than 30 years, capable of undertaking calculation in reinforced concrete and steel frames, also in respect of general constructions. Knowledge of Engineer's quantities. Possibility taking charge small group draughtsmen. Salary 12-15 gns. per week.—Box 382 *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY AMALGAMATION IN GREAT BRITAIN. By W. E. Simnett. An authoritative account of the course of railway amalgamation in Great Britain up to the end of 1923. Cloth. 8½ in. by 5½ in. 276 pp. 15*s*. By post 15*s*. 7*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

DRAUGHTSMAN, GRADE II, required by the East African Railways and Harbours Administration for one tour of 40-48 months in the first instance. Commencing salary according to age in the scale £462 rising to £570 a year. Outfit allowance £30. Free passages and quarters. Candidates between 22 and 25, must have served an appropriate apprenticeship with British Railways or an engineering firm of repute and have had subsequent experience as a draughtsman in the detailing of mechanical designs, preferably including locomotive, carriage and wagon and machine details. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/24790 (3B) on both letter and envelope.

DESIGNER-DRAUGHTSMAN required for London Office for work on industrial-type Diesel-Electric Locomotives. Man with experience of steam locomotive design would be suitable. Applications from retired draughtsmen willing to work on a whole- or part-time basis will be considered.—CLAYTON EQUIPMENT CO. LTD., 138, Borough High Street, London, S.E.1.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth. 8½ in. by 5½ in. 82 pp. Diagrams. 5*s*. By post 5*s*. 3*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

MECHANICAL APPLIANCES FOR HANDLING RAILWAY TRAFFIC. By G. Bulkeley. An explanation of the employment of mechanical apparatus for handling and carting general goods. Cloth. 7½ in. by 5 in. 132 pp. Illustrated. 5*s*. By post 5*s*. 3*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1

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insists on paying in Eastern marks. It is estimated that the 38-day strike has cost the Berlin municipality £150,000 in unemployment relief, and the railwaymen's union has contributed a further £42,750. The financial loss to the Berlin economy is put at several million pounds.

Railway Benevolent Institution.—The board of the Railway Benevolent Institution at its meeting on June 24 granted annuities to seven widows and nine members, amounting to £277 4*s*., from the general fund of the Institution, and sanctioned grants from the special benevolent fund amounting to £304 5*s*. to 24 applicants. Grants made from the casualty fund during May amounted to £857 19*s*.

The Institution of Civil Engineers Conversazione.—At the annual conversazione of the Institution of Civil Engineers held on Thursday, June 30, from 8 p.m. to 11 p.m., there was an exhibition of engineering models and scientific apparatus. As this is Colonial month, the exhibition included exhibits of Colonial interest, such as examples of Colonial timbers and their use in industry, technical details showing how maps are prepared from aerial photographs; a planning model of semi-outdoor power station for Cyprus; a model of the Nigerian Government's suction dredger, and other exhibits of interest to engineers in the Colonies, as well as exhibits of more general interest.

Re-organisation of Country Bus & Coach Department, London Transport.—The outside operations of the Country Bus & Coach Department of London Transport has been re-organised on the basis of two divisions. The southern division, with headquarters at Reigate, will include the south-eastern, southern, south-western and central districts, and will be in the charge of Mr. C. E. Ayres, Operating Superintendent, reporting to the Operating Manager (Country Buses & Coaches). The northern division, with headquarters at St. Albans, will include the north-western, northern, and north-eastern districts and will be in the charge of the Divisional Superintendent (North), Mr. H. F. C. Adcock. The former road and traffic headquarters have been merged in a new Operating Section, and a new section, the Traffic Investigations Section, has been formed to review the bus and coach services and undertake investigations into traffic and operational matters.

Railway & Traders' Conference for Birmingham Area.—The Railway & Traders' Conference for the Birmingham, South Staffordshire, East Worcestershire, and North Warwickshire area met in Birmingham on June 17, when the chair was taken by Mr. L. C. Brittlebank, District Goods Manager, Birmingham, London Midland Region. He said that he and his railway colleagues desired to give the traders in the Birmingham district the best service, and to that end they welcomed suggestions for improving the railway facilities. Mr. C. E. Jordan (Federation of British Industries), replying on behalf of the traders, expressed appreciation of the work of the conference. The meetings provided opportunities for fruitful discussions, and contacts were made which were very useful in the solution of transport difficulties.

Eire Wage Claims.—The Irish Railway Board, in Dublin on June 24, decided to postpone applications for a reduction in the working hours of Great Northern Railway employees whose home stations are in Eire, from 48 to 44 hours a week. The applications will be heard on a date to be fixed after the results of the company are available. Making the application on behalf of the N.U.R., Mr. J. Shearer said that the G.N.R. had already agreed to the 44-hour week for Northern Ireland employees, but excluded those in Eire. Mr. W. J. Evans, Associated Society of Locomotive Engineers & Firemen, said that the predominant factor in the claim was that 85 per cent. of the G.N.R. footplate men enjoyed a 44-hour week, which was denied to the remaining 15 per cent. Mr. George B. Howden, General Manager, G.N.R., said that the claims affected about 1,875 men, and it was estimated that to concede them, the additional cost would be about £40,000 a year. In the first five months of this year the total gross receipts of the undertaking from all sources was £225,000 short of the total expenditure. This result was £175,000 worse than for the corresponding period of 1948. Any question of further increasing expenditure was ruled out quite apart from the merits of the claims.

British Railways Police Complaint.—At a meeting of the Railway Police Federation on June 23, the representatives of London railway police passed a resolution, by 175 votes to 12, calling for the withdrawal of Colonel N. McK. Jesper from the post of Chief of Police, London Area, British Railways, the complaint, among others, being that he is "out of touch" with the rank and file. The resolution will go before the central conference of the Federation on July 6 and if passed will be put before the Railway Executive on July 19.

Disposal of Surplus Non-Ferrous Metals.—The Ministry of Supply announces that the functions of the Disposals Section, Non-Ferrous Metals Directorate, is being transferred to the Contracts Division of the Ministry. From today (July 1), inquiries concerning Government-owned surplus non-ferrous metals (scrap and semi-manufactured) should be made in the first instance to Ministry of Supply, Contracts Division (Disposals/R.E.7), Great Westminster House, Horseferry Road, London, S.W.1 (telephone: Victoria 3811; telegraphic address: Splycontra, Wire, London). Payment for surplus non-ferrous metals should be made to Ministry of Supply, A.G. 42(d), Adelphi, John Adam Street, W.C.2, instead of to Rugby. These changes apply

only to metal sold as surplus, and do not affect virgin non-ferrous metals, which will continue to be dealt with by the Non-Ferrous Metals Directorate, 20, Albert Street, Rugby (telephone: Rugby 2131).

Day Trips to France.—The first cross-Channel day excursion for ten years took place on Monday, June 27, when passengers travelled between Folkestone and Boulogne on the new British Railways steamer *Maid of Orleans*, which is described elsewhere in this issue. The excursions will be run every Monday, Tuesday, Wednesday, and Thursday until September 29, leaving Folkestone at 10.20 a.m. and arriving at Boulogne at 11.50 a.m., and returning from Boulogne at 6.10 p.m., arriving at Folkestone at 7.40 p.m. The third class day return fares are 40s. for adults and 22s. 6d. children; passengers require a passport.

Speeding Dockside Weighing.—The importance of accurate and speedy weighing has particular application to the dockside. To meet this need George Salter & Co. Ltd., West Bromwich, designed a crane weigher which, suspended from the crane hook, enables goods to be weighed while being loaded or unloaded. This machine is available at present in capacities of from 1 to 100 tons—the latter believed to be the largest-capacity suspended portable weighing machine in existence—and the first 100-ton machine to be made is now in use at Greenock Docks. A supply of similar machines has been despatched to the Dutch East Indies for docks duty. Enquiries have been received recently for a weigher having a capacity of 200 tons, and the firm is now engaged on its production.

Unusual Rail Container Service.—The rail transit container service of the Eastern Region of British Railways is now being put to a new use. In conjunction with the British Iron & Steel Research Association a start was made on June 27 in the collection of iron and steel samples placed in the ground five years ago to test the effect of prolonged burial. These samples were buried in different kinds of soil at a number of places to determine the varying chemical reactions. In arranging for conveyance of the recovered specimens, the Eastern Region is having to pay particular attention to the need not to disturb deposits or incrustations on the specimens, and to meet this requirement a standard type of road/rail container is being provided. The first samples were collected at Benfleet between June 27 and 29, and the last specimens will be collected at Gotham about August 13, visiting Pitsea, St. Albans (for Rothamsted), Corby & Weldon, and Nottingham (for Gotham) *en route*. From Nottingham the container will be forwarded to Stanton Ironworks to arrive on August 15. The specimens at each point weigh about ¼ ton when packed and the total weight of all specimens will be approximately 4 tons.

Forthcoming Meetings

July 9 (*Sat.*).—British Railways (Southern Region) Lecture & Debating Society. Visit to Heathrow Airport.

July 13 (*Wed.*).—Institute of Welding, at the Institution of Civil Engineers, Great George Street, London, S.W.1, at 2.30 p.m. Annual general meeting.

July 16 (*Sat.*).—Permanent Way Institution. London Section. Visit to London Airport, at 2.30 p.m.

Railway Stock Market

Stock markets have been dominated by another heavy slump in British Funds which last Monday experienced their worst day since the war. Falls ranged to £2½ and nationalisation stocks suffered most. The latter took their cue from British Gas which fell heavily to £94¼ on news that a further £18,000,000 of this stock is being issued as compensation to stockholders of the former gas companies. Reflecting the general trend British Transport 3 per cent. (1977-88) has fallen to £95. This nationalisation stock was down to £93¼ at one time in 1948 and later touched £101¼. It is one of the many disadvantages of giving stock instead of cash as compensation for nationalisation that market prices will fluctuate at times of uncertainty. News of the deadlock on the proposal to make European currencies convertible has emphasised the differences in British Government and American views on currency and allied problems. Industrial shares have been overshadowed by the trend in gilt edged and were generally lower with further falls ranging up to 2s. 6d.

There was only limited interest in foreign rails, and, where changed, lower prices have ruled, although on balance the falls have not been heavy. Market view is that it is unlikely that Brazil will finally ratify the release of take-over money for the Leopoldina and Great Western of Brazil railways before the beginning of next year. Meanwhile, there is only limited speculative interest in the stocks, although there has been no downward revision of views as to the likely pay-out terms for the individual stocks. A statement is expected before long from the Leopoldina company giving the various terms. Great Western of Brazil shares have eased to 140s. at the time of writing. Leopoldina ordinary is back to £8, the preference stock 30, the 4 per cent. debentures 91½, and the 6½ per cent. debentures 135. Leopoldina Terminal shares were 3s. 6d. and the 5 per cent. debentures steady at 110½. San Paulo at 126 moved lower on balance and United of Havana 1906 debentures lost part of an earlier improvement. Canadian Pacific have been fairly steady around 15½, but the preference stock fell sharply to 55, and the 4 per cent. debentures to 102.

There have been heavy falls ranging up to 10s. on balance in shares of bus and road transport companies. This was due partly to the general trend of markets, and sentiment was also affected by the statement that acquisition of road transport companies by voluntary agreement has been practically completed. Mr. H. C. Drayton no doubt will give his views on the position at the forthcoming meeting of B.E.T. Mr. Drayton has never favoured voluntary negotiations on take-over with British Transport. Aldershot Traction shares have fallen sharply to 120s., Southdown to 122s. 6d., and West Riding Automobile to 78s. There has been a big fall in B.E.T. stock to £1,380 and on Monday this was marked down by as much as £100.

Iron and steel shares recorded another general reaction and have dropped still further below their official take-over valuations. Dorman Long were no better than 27s. 6d., United Steel 25s. 3d., Stewarts and Lloyds 53s., and, despite the good results, Thomas & Baldwins came back to 12s. 6d. Locomotive building and engineering shares were also down, North British Locomotive being 17s. 6d., Vulcan Foundry 16s. 6d., Gloucester Wagon 42s. 6d., and Beyer Peacock 18s. 6d., though Wagon Repairs kept steady at 19s.

RUSTON & HORNSBY: ANNUAL REPORT.—Last year the combined profit of Ruston & Hornsby Limited and its subsidiaries, together with income from trade and other investments, amounted to £2,212,702, which represents a new high record and compares with £1,343,000 for the previous twelve months. The profit of the company, including £151,140 from trade and other investments, amounted to £1,496,996 as against £1,118,977. It is proposed to appropriate £150,000 to replacement of plant and £200,000 to general reserve in addition to £100,000 for pensions and £190,000 to stock and general contingencies. The ordinary dividend of 12½ per cent., less tax, is the same as for the past ten years.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Inc. or dec. compared with 1947/48	No. of week	Aggregate traffics to date: Total 1948/49	Increase or decrease
				£	£		£	£
South & Central America	Antofagasta... ...	811	19.6.49	68,830	+ 5,870	24	1,609,160	+ 315,030
	Costa Rica	281	Mar., 1949	38,753	+ 13,363	39	321,689	+ 29,338
	Dorada ...	70	May., 1949	28,732	— 2,268	21	149,043	+ 43,343
	G.W. of Brazil ...	1,083	21.5.49	19,200	— 10,600	20	755,800	+ 1,200
	Inter. Ctl. Amer. ...	794	Apr., 1949	$1,071,343	— $147,117	17	$4,356,688	— $455,995
	La Guaira	22¾	May, 1949	$103,455	— $12,994	22	$555,929	+ $31,948
	Leopoldina	1,902	28.5.49	43,288	+ 3,684	21	965,094	— 155,382
	Nitrate	382	15.6.49	22,839	+ 10,661	24	200,714	+ 67,256
	Paraguay Cent. ...	274	17.6.49	₲91,814	+ ₲9,146	50	₲5,198,298	+ ₲1,656,434
	Peru Corp. ...	1,059	May, 1949	256,274	+ 75,513	48	2,306,425	+ 399,101
	Salvador	100	Mar., 1949	c169,000	— c71,000	39	c1,608,000	— c13,600
	Taltal	156	May, 1949	11,500	+ 2,560	48	99,755	+ 10,735
	United of Havana ...	1,301	11.6.49	$231,311	+ $14,746	49	$13,733,928	— $4,659,951
Canada	Canadian National...	23,473	May., 1949	10,046,000	— 240,250	21	49,046,250	+ 1,857,250
	Canadian Pacific ...	17,037	Apr., 1949	7,534,250	+ 654,250	17	28,923,750	+ 2,654,000
Various	Barsi Light* ...	202	May, 1949	27,322	+ 172	9	69,007	+ 11,130
	Beira	204	Feb., 1949	104,917	— 6,180	22	589,461	+ 9,141
	Egyptian Delta ...	607	10.5.49	20,092	+ 1,010	6	79,499	+ 6,047
	Gold Coast ...	536	Apr., 1949	225,932	+ 1,140	5	225,932	+ 1,140
	Mid. of W. Australia	277	Apr., 1949	30,072	+ 199	43	290,377	+ 51,032
	Nigeria	1,900	Mar., 1949	494,854	+ 92,981	48	5,719,011	+ 1,001,177
	South Africa ...	13,347	4.6.49	1,536,076	+ 216,990	9	13,440,780	+ 1,246,854
	Victoria	4,774	Feb., 1949	1,484,797	+ 54,817	35	—	—

* Receipts are calculated @ 1s. 6d. to the rupee